



Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2

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About This Guide

This preface describes the objectives, audience, organization, and conventions of the *Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2*.

Objectives

This guide describes how to configure the Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950 and the Cisco MGX 8830 switch software and how to perform some operating procedures after the switch begins operation.

Audience

The *Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2* provides network operators and administrators with configuration procedures for provisioning Frame Relay and ATM services on the MPSM-T3E3-155 and MPSM-16T1E1 cards.

Organization

The major sections of this document are as follows:

- [Chapter 1, “Introduction,”](#) introduces the MPSM-T3E3-155 and MPSM-16T1E1 card and their features.
- [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,”](#) describes how to prepare MPSM-T3E3-155 and MPSM-16T1E1 lines for ATM and Frame Relay provisioning, including Multilink Frame Relay (MFR) and Multilink PPP (MP/MLPPP).
- [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) describes how to provision ATM connections between the MPSM-T3E3-155 and MPSM-16T1E1 cards described in this guide, and between these cards and other types of cards.
- [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) describes how to provision Frame Relay connections, including Multilink Frame Relay, between the MPSM-T3E3-155 and MPSM-16T1E1 cards described in this guide, and between these MPSM-T3E3-155 cards and other types of cards.

- [Chapter 5, “Provisioning Multilink PPP Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) describes how to provision Multi-Link PPP connections.
- [Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) describes card management tasks you might want to do after provisioning is complete.
- [Chapter 7, “Command Reference,”](#) describes the command-line interface (CLI) commands that you can use to configure, provision, and manage the MPSM-T3E3-155 and MPSM-16T1E1 cards.

Conventions

This publication uses the conventions listed in the following paragraphs.

- Command descriptions use these conventions:
- Commands and keywords are in boldface.
- Arguments for which you supply values are in italics.
- Required command arguments are inside angle brackets (< >).
- Optional command arguments are in square brackets ([]).
- Alternative keywords are separated by vertical bars (|).

Examples use these conventions:

- Terminal sessions and information the system displays are in screen font.
- Information you enter is in boldface screen font.
- Nonprinting characters, such as passwords, are in angle brackets (< >).
- Default responses to system prompts are in square brackets ([]).



Note

Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.



Caution

Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.



Tip

Means the following information will help you solve a problem. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

Documentation

A *Finding Cisco User Documentation Online* document ships with your product. That guide contains general information about how to locate Cisco MGX, BPX, SES, and CWM documentation online.

Documentation Notes for these Product Releases

This release includes new hardware or features for the following releases:

- Cisco MGX Release 5.2 introduces the Cisco MGX 8850/B multiservice switch
- Cisco MGX Release 5.2, for these multiservice switches:
 - Cisco MGX 8850 (PXM1E)
 - Cisco MGX 8850 (PXM45)
 - Cisco MGX 8950
 - Cisco MGX 8830
- Cisco MGX Release 1.3, for these multiservice switches:
 - Cisco MGX 8850 (PXM1)
 - Cisco MGX 8230
 - Cisco MGX 8250
- Cisco MGX Release 5.2, for the Route Processor Modules (RPM-XF and RPM-PR)
- Cisco WAN Manager Release 15.1. CWM Release 15 introduced a helpful new documentation feature: web-based *online help*. To invoke online help, press **F1** on a PC, press the **Help** key on a UNIX workstation, or select **Help** from the main or popup menu. Cisco WAN Manager online help has been updated for Release 15.1.

Other components of multiservice WAN products, such as the Service Expansion Shelf (SES) and WAN switching software have no new features for this release.

Related Documentation

This section describes the technical manuals and release notes that support this release of Cisco Multiservice Switch products.

Technical Manual Order of Use

Use the technical manuals listed here in the following order:

-
- Step 1** Refer to the documents that ship with your product. Observe all safety precautions.
- *Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)*—This document familiarizes you with safety precautions for your product.
 - *Finding Cisco User Documentation Online*—This document explains how to find documentation for MGX, BPX, and SES multiservice switches and media gateways as well as CWM network management software. These documents are available only online.
 - *Installation Warning Card*—This document provides precautions about installing your cards. It explains such subjects as removing the shipping tab and inserting cards properly into the correct slots.
- Step 2** Refer to the release notes for your product.
- Step 3** If your network uses the CWM network management system, upgrade CWM. (If you are going to install CWM for the first time, do so *after* Step 4.) Upgrade instructions are included in the following documents:

- *Cisco WAN Manager Installation Guide, Release 15.1*
 - *Cisco WAN Manager User's Guide, Release 15.1*
- Step 4** If your network contains MGX and SES products, refer to this manual for planning information:
- *Cisco PNNI Network Planning Guide for MGX and SES Products*
- Step 5** Refer to these manuals for information about installing cards and cables in the MGX chassis:
- *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2* for installing cards and cables in these chassis.
 - *Cisco MGX 8xxx Edge Concentrator Installation and Configuration Guide* for installing cards and cables in the Cisco MGX 8230, Cisco MGX 8250, or Cisco MGX 8850 (PXM1) chassis.
- Step 6** Refer to the manuals that help you configure your MGX switch and processor cards:
- *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2* for these chassis.
 - *Cisco MGX 8xxx Edge Concentrator Installation and Configuration Guide* for the Cisco MGX 8230, Cisco MGX 8250, or Cisco MGX 8850 (PXM1) chassis.
- Step 7** Refer to the manual that supports the additional cards you intend to install in your switch. For example:
- The services books can help you establish ATM, Frame Relay, or circuit emulation services on your switch.
 - The VISM book can help you set up your switch as a voice gateway, and the RPM book can help you implement IP on the switch.
- Step 8** Additional books, such as command reference guides and error message books, can help with the daily operation and maintenance of your switch.

**Note**

Manual titles may be different for earlier software releases. The titles shown in [Table 1](#) are for the September 2005 release.

Technical Manual Titles and Descriptions

[Table 1](#) lists the technical manuals and release notes that support the September 2005 multiservice switch product releases. Books and release notes in [Table 1](#) are listed in order of use and include information about which multiservice switch or media gateway the document supports.

The books for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches were not updated for the September 2005 release, therefore, some information about configuring and using the new MPSM-8-T1E1 card in these switches is included in the following books:

- *Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Frame Relay Services (FRSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Circuit Emulation Services (CESM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*

Information about how to install or upgrade to the MPSM-8-T1E1 card in Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches is in the *Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12*.

**Note**

Refer to each product's release notes for the latest information on features, bug fixes, and more.

Terms

Two main types of ATM cards are used in MGX switches: AXSM and AUSM. *AXSM* stands for ATM Switching Service Module. *AUSM* stands for ATM UNI (User Network Interface) Service Module.

CWM stands for Cisco WAN Manager, our multiservice switch network management system.

Legacy service module refers to a previously introduced card. For this release, the term is used specifically for the CESM-8-T1E1, FRSM-8-T1E1, and AUSM-8-T1E1 cards, which can now be replaced by the new MPSM-8-T1E1 card.

MPSM stands for Multiprotocol Service Module.

RPM stands for Route Processor Module.

SES stands for Service Expansion Shelf.

VISM stands for Voice Interworking Service Module.

VXSM stands for Voice Switch Service Module.

Table 1 *Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases)*

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2.
Overview and Safety Documents									
<i>Finding Cisco User Documentation Online</i> DOC-7814807=	x	x	x	x	x	x	x	x	x
<i>Installation Warning Card</i> DOC-7812348=	x	x	x	x	x	x	x	x	x
<i>Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)</i> DOC-7814790=	x	x	x	x	x	x	x	x	x
<i>Release Notes for the Cisco MGX 8880 Media Gateway, Release 5.0.02</i> OL-6493-01	—	—	—	—	—	—	—	—	x
<i>Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.2.00</i> OL-6478-01	—	—	—	—	x	x	x	x	

Table 1 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2
<i>Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12</i> OL-4539-01	—	x	x	x	—	—	—	—	—
<i>Release Notes for the Cisco Voice Switch Service Module (VXSM), Release 5.0.70</i> OL-4627-01	—	—	—	—	—	—	x	—	x
<i>Release Notes for Cisco WAN Manager, Release 15.1.00</i> OL-6495-01	x	x	x	x	x	x	x	x	x
<i>Release Notes for the Cisco Voice Interworking Service Module (VISM), Release 3.3</i> OL-5357-01	—	x	x	x	x	x	x	—	x
<i>Release Notes for Cisco MGX Route Processor Module (RPM-XF) IOS Release 12.3(11)T5 for PXM45-based Switches, Release 5.1.20</i> OL-4536-01	—	—	—	—	x	—	x	x	x
<i>Release Notes for Cisco MGX Route Processor Module (RPM-PR) IOS Release 12.3(11)T5 for MGX Releases 1.3.12 and 5.1.20</i> OL-4535-01	—	x	x	x	x	x	x	x	x
<i>Cisco MGX 8230 Edge Concentrator Overview, Release 1.1.3¹</i> DOC-7812899=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Edge Concentrator Overview, Release 1.1.3¹</i> DOC-7811576=	—	—	x	—	—	—	—	—	—
<i>Cisco MGX 8850 Multiservice Switch Overview, Release 1.1.3¹</i> OL-1154-01	—	—	—	x	—	—	—	—	—

Table 1 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2.
Hardware Installation Guides									
<i>Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2</i> OL-4545-01	—	—	—	—	x	x	x	x	x
<i>Cisco Service Expansion Shelf Hardware Installation Guide, Release 1¹</i> DOC-786122=	x	—	—	—	—	—	—	—	—
Planning and Configuration Guides									
<i>Cisco PNNI Network Planning Guide for MGX and SES Products</i> OL-3847-01	x	—	—	—	x	x	x	x	x
<i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> OL-6482-01	—	—	—	—	x	x	x	x	x
<i>Cisco WAN Manager Installation Guide, Release 15.1</i> OL-6259-01	x	x	x	x	x	x	x	x	x
<i>Cisco WAN Manager User's Guide, Release 15.1</i> OL-6257-01	x	x	x	x	x	x	x	x	x
<i>Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811223=	—	—	—	x	—	—	—	—	—
<i>Cisco SES PNNI Controller Software Configuration Guide, Release 3¹</i> DOC-7814258=	x	—	—	—	—	—	—	—	—
<i>Cisco MGX 8230 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811215=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Edge Concentrator Installation and Configuration, Release 1.1.3¹</i> DOC-7811217=	—	—	x	—	—	—	—	—	—

Table 1 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2.
Service Module Configuration and Reference Guides									
<i>Cisco MGX Route Processor Module (RPM-PR) Installation and Configuration Guide, Release 5.2¹</i> 78-12510-02	—	x	x	x	—	—	—	—	—
<i>Frame Relay Software Configuration Guide and Command Reference for the Cisco MGX 8850 FRSM12 Card, Release 3¹</i> DOC-7810327=	—	—	—	—	—	—	x	—	—
<i>Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6479-01	—	2	2	2	x	x	x	—	—
<i>Cisco Frame Relay Services (FRSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6480-01	—	2	2	2	x	x	x	—	—
<i>Cisco Circuit Emulation Services (CESM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2²</i> OL-6481-01	—	2	2	2	x	x	x	—	—
<i>Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.2¹</i> OL-5087-01	—	—	—	—	—	—	x	x	x
<i>Cisco ATM Services (AXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6484-01	—	—	—	—	—	—	x	x	x
<i>Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6487-01	—	—	—	—	x	—	x	—	—

Table 1 Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases) (continued)

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2
<i>Cisco Voice Switch Services (VXSM) Configuration Guide and Command Reference for MGX Switches, Release 5</i> OL-4625-01	—	—	—	—	—	—	x	—	x
<i>Cisco Voice Interworking Services (VISM) Configuration Guide and Command Reference, Release 3.3</i> OL-5358-01	—	x	x	x	x	x	x	—	x
Reference Guides									
<i>Cisco MGX 8230 Multiservice Gateway Error Messages, Release 1.1.3¹</i> DOC-78112113=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8230 Multiservice Gateway Command Reference, Release 1.1.3¹</i> DOC-7811211=	—	x	—	—	—	—	—	—	—
<i>Cisco MGX 8250 Multiservice Gateway Command Reference, Release 1.1.3¹</i> DOC-7811212=	—	—	x	—	—	—	—	—	—
<i>Cisco MGX 8250 Multiservice Gateway Error Messages, Release 1.1.3¹</i> DOC-7811216=	—	—	x	—	—	—	—	—	—
<i>Cisco MGX 8800 Series Switch Command Reference, Release 1.1.3¹</i> DOC-7811210=	—	x	x	x	—	—	—	—	—
<i>Cisco MGX 8800 Series Switch System Error Messages, Release 1.1.3¹</i> DOC-7811240=	—	x	x	x	—	—	—	—	—
<i>Cisco SES PNNI Controller Command Reference, Release 3¹</i> DOC-7814260=	x	—	—	—	—	—	—	—	—

Table 1 *Technical Manuals and Release Notes for Cisco MGX and BPX Switches and Media Gateways (September 2005 Product Releases) (continued)*

Document Title and Part Number	BPX with SES Rel. 4	MGX 8230 Rel. 1.3	MGX 8250 Rel. 1.3	MGX 8850 (PXM1) Rel. 1.3	MGX 8830 Rel. 5.2	MGX 8850 (PXM1E) Rel. 5.2	MGX 8850 (PXM45) Rel. 5.2	MGX 8950 Rel. 5.2	MGX 8880 Rel. 5.2.
<i>Cisco MGX 8800/8900 Series Command Reference, Release 5.2</i> OL-6483-01	—	—	—	—	x	x	x	x	x
<i>Cisco WAN Manager SNMP Service Agent, Release 15.1</i> OL-6260-01	x	x	x	x	x	x	x	x	x
<i>Cisco WAN Manager Database Interface Guide, Release 15.1</i> OL-6261-01	x	x	x	x	x	x	x	x	x
<i>Cisco MGX and Service Expansion Shelf Error Messages, Release 5.2</i> OL-6485-01	x	—	—	—	x	x	x	x	x

1. This document was not updated for the September 2005 release.
2. Some configuration and command information is included in this book for using the multiprotocol service module (MPSM-8-T1E1/MPSM-16-T1E1) in a Cisco MGX 8230, MGX 8250, or MGX 8850 (PXM1) switch.



Note

For the September 2005 product release, there are no new features for the Service Expansion Shelf (SES) of the BPX switch and BPX WAN switching software. Therefore, documentation for these items was not updated. [Table 1](#) lists the most recent technical manuals and release notes for these products.

[Table 1](#) also lists the latest documentation available for the Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) switches. These switches use the PXM1 processor card. Although there are new features in MGX Release 1.3 for these switches, only the release notes were updated. And the following books contain some information about configuring the MPSM-8-T1E1 and MPSM-16-T1E1 cards for use in these switches:

- *Cisco Circuit Emulation Services (CESM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco Frame Relay Services (FRSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*
- *Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*

Table 2 lists the documents that ship with product.

Table 3 contains alphabetized titles and descriptions of all the manuals and release notes listed in Table 1.

Table 2 Documents that Ship with Multiservice Switch Products

Document Title	Description
<i>Finding Cisco User Documentation Online</i> DOC-7817081=	Describes how to find the manuals and release notes that support multiservice switches and network management products. These documents are available only online. This guide ships with product.
<i>Installation Warning Card</i> DOC-7812348=	Contains precautions that you should take before you insert a card into a slot. This Warning Card ships with product.
<i>Regulatory Compliance and Safety Information for Cisco Multiservice Switch Products (MGX, BPX, and SES)</i> DOC-7814790=	Provides regulatory compliance information, product warnings, and safety recommendations for all the Cisco MGX multiservice switches: MGX 8230, MGX 8250, MGX 8850 (PXM1), MGX 8850 (PXM45), MGX 8850 (PXM1E), MGX 8830 and MGX 8950. Also provides such information for the MGX 8880 Media Gateway. This book ships with product.

Table 3 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products

Document Title	Description
<i>Cisco ATM and Frame Relay Services (MPSM-T3E3-155 and MPSM-16-T1E1) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6487-01	Provides software configuration procedures for provisioning ATM and Frame Relay connections on the new MPSM-T3E3-155 multiprotocol service module. Also describes all MPSM-T3E3-155 commands.
<i>Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6479-01	Provides software configuration procedures for provisioning connections and managing the AUSM cards supported in this release. Also describes all AUSM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as an AUSM card replacement.
<i>Cisco ATM Services (AXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-4548-01	Explains how to configure the AXSM cards and provides a command reference that describes the AXSM commands in detail. The AXSM cards covered in this manual are the AXSM-XG, AXSM/A, AXSM/B, AXSM-E, and AXSM-32-T1E1-E.
<i>Cisco Circuit Emulation Services (CESM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6481-01	Provides software configuration procedures for provisioning connections and managing the Circuit Emulation Service Module (CESM) cards supported in this release. Also describes all CESM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as a CESM card replacement.

Table 3 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)

Document Title	Description
<i>Cisco Frame Relay Services (FRSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2</i> OL-6480-01	Provides software configuration procedures for provisioning connections and managing the Frame Relay Service Module (FRSM) cards supported in this release. Also describes all FRSM commands. Includes software configuration procedures for provisioning connections and managing the MPSM-8-T1E1 card as an FRSM card replacement.
<i>Cisco MGX 8230 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811215=	Provides installation instructions for the Cisco MGX 8230 edge concentrator.
<i>Cisco MGX 8230 Edge Concentrator Overview, Release 1.1.3</i> DOC-7812899=	Describes the system components and function of the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8230 Multiservice Gateway Command Reference, Release 1.1.3</i> DOC-7811211=	Provides detailed information on the general command line interface commands.
<i>Cisco MGX 8230 Multiservice Gateway Error Messages, Release 1.1.3</i> DOC-78112113=	Provides error message descriptions and recovery procedures.
<i>Cisco MGX 8250 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811217=	Provides installation instructions for the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8250 Edge Concentrator Overview, Release 1.1.3</i> DOC-7811576=	Describes the system components and function of the Cisco MGX 8250 edge concentrator.
<i>Cisco MGX 8250 Multiservice Gateway Command Reference, Release 1.1.3</i> DOC-7811212=	Provides detailed information on the general command line interface commands.
<i>Cisco MGX 8250 Multiservice Gateway Error Messages, Release 1.1.3</i> DOC-7811216=	Provides error message descriptions and recovery procedures.
<i>Cisco MGX 8800 Series Switch Command Reference, Release 1.1.3</i> DOC-7811210=	Provides detailed information on the general command line for the Cisco MGX 8850 (PXM1), Cisco MGX 8250, and Cisco MGX 8230 edge concentrators.
<i>Cisco MGX 8800 Series Switch System Error Messages, Release 1.1.3</i> DOC-7811240=	Provides error message descriptions and recovery procedures for Cisco MGX 8850 (PXM1), Cisco MGX 8250, and Cisco MGX 8230 edge concentrators.

Table 3 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)

Document Title	Description
<i>Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2</i> OL-4545-01	Describes how to install the Cisco MGX 8950, the Cisco MGX 8850 (PXM1E/PXM45), the Cisco MGX 8850/B (PXM1E/PXM45), and the Cisco MGX 8830 switches. Also describes how to install the MGX 8880 Media Gateway. This document explains what each switch does and covers site preparation, grounding, safety, card installation, and cabling. The Cisco MGX 8850 switch uses either a PXM45 or a PXM1E controller card and provides support for both serial bus-based and cell bus-based service modules. The Cisco MGX 8830 switch uses a PXM1E controller card and supports cell bus-based service modules. The Cisco MGX 8950 supports only serial bus-based service modules. The Cisco MGX 8880 uses a PXM45/C controller card, and supports only serial bus-based service modules. <i>This hardware installation guide replaces all previous hardware guides for these switches.</i>
<i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> OL-6482-01	Describes how to configure the Cisco MGX 8880 Media Gateway. Also describes how to configure Cisco MGX 8850 (PXM1E), Cisco MGX 8850 (PXM45), the Cisco MGX 8850/B (PXM1E/PXM45), and Cisco MGX 8830 switches to operate as ATM edge switches and the Cisco MGX 8950 switch to operate as a core switch. This guide also provides some operation and maintenance procedures.
<i>Cisco MGX 8800/8900 Series Command Reference, Release 5.2</i> OL-6483-01	Describes the PXM commands that are available in the CLI of the Cisco MGX 8850 (PXM45), Cisco MGX 8850 (PXM1E), Cisco MGX 8950, and Cisco MGX 8830 switches. Also describes the PXM commands that are available in the CLI of the Cisco MGX 8880 Media Gateway.
<i>Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3</i> DOC-7811223=	Provides installation instructions for the Cisco MGX 8850 (PXM1) edge concentrator.
<i>Cisco MGX 8850 Multiservice Switch Overview, Release 1.1.3</i> OL-1154-01	Describes the system components and function of the Cisco MGX 8850 (PXM1) edge concentrator.
<i>Cisco MGX and Service Expansion Shelf Error Messages, Release 5.2</i> OL-6485-01	Provides error message descriptions and recovery procedures.
<i>Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.2</i> OL-6954-01	Describes how to install and configure the Cisco MGX Route Processor Module (RPM-XF) in the Cisco MGX 8850 (PXM45), Cisco MGX 8880 (PXM45), and Cisco MGX 8950 switch. Also provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and basic Cisco IOS configuration information.

Table 3 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)

Document Title	Description
<i>Cisco MGX Route Processor Module (RPM-PR) Installation and Configuration Guide, Release 5.2</i> OL-7349-01	Describes how to install and configure the Cisco MGX Route Processor Module (RPM/B or RPM-PR) in the Cisco MGX 8850 (PXM1), the Cisco MGX 8250, and the Cisco MGX 8230 edge concentrators. Also provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and basic Cisco IOS configuration information.
<i>Cisco PNNI Network Planning Guide for MGX and SES Products</i> OL-3847-01	Provides guidelines for planning a PNNI network that uses Cisco MGX 8830, Cisco MGX 8850 (PXM45 and PXM1E), Cisco MGX 8950, or Cisco BPX 8600 switches or the MGX 8880 Media Gateway. When connected to a PNNI network, each Cisco BPX 8600 Series switch requires an SES for PNNI route processing.
<i>Cisco Service Expansion Shelf Hardware Installation Guide, Release 1</i> DOC-786122=	Provides instructions for installing and maintaining an SES controller.
<i>Cisco SES PNNI Controller Command Reference, Release 3</i> DOC-7814260=	Describes the commands used to configure and operate the SES PNNI controller.
<i>Cisco SES PNNI Controller Software Configuration Guide, Release 3</i> DOC-7814258=	Describes how to configure, operate, and maintain the SES PNNI controller.
<i>Cisco Voice Interworking Services (VISM) Configuration Guide and Command Reference, Release 3.3</i> OL-5358-01	Describes how to install and configure the Voice Interworking Service Module (VISM) in the Cisco MGX 8830, Cisco MGX 8850 (PXM45), and Cisco MGX 8850 (PXM1E) multiservice switches. Provides site preparation procedures, troubleshooting procedures, maintenance procedures, cable and connector specifications, and Cisco CLI configuration information.
<i>Cisco Voice Switch Services (VXSM) Configuration and Command Reference Guide for MGX Switches, Release 5</i> OL-4625-01	Describes the features and functions of the new Voice Switch Service Module (VXSM) in the Cisco MGX 8880 Media Gateway and in the Cisco MGX8850 (PXM45 and PXM1E) multiservice switches. Also provides configuration procedures, troubleshooting procedures, and Cisco CLI configuration information.
<i>Cisco WAN Manager Database Interface Guide, Release 15.1</i> OL-6261-01	Provides information about accessing the CWM Informix database that is used to store information about the network elements.
<i>Cisco WAN Manager Installation Guide, Release 15.1</i> OL-6259-01	Provides procedures for installing Release 15.1 of the CWM network management system.
<i>Cisco WAN Manager SNMP Service Agent, Release 15.1</i> OL-6260-01	Provides information about the CWM Simple Network Management Protocol service agent, an optional adjunct to CWM that is used for managing Cisco WAN switches through SNMP.

Table 3 Descriptions of Technical Manuals and Release Notes for Cisco Multiservice Switch Products (continued)

Document Title	Description
<i>Cisco WAN Manager User's Guide, Release 15.1</i> OL-6257-01	Describes how to use the CWM Release 15.1 software, which consists of user applications and tools for network management, connection management, network configuration, statistics collection, and security management. Note The CWM interface now has built-in documentation support in the form of online Help. On a PC, press F1 to access Help; on a UNIX workstation, press the Help key. Alternatively, on either system you can select Help from the main or popup menu.
<i>Frame Relay Software Configuration Guide and Command Reference for the Cisco MGX 8850 FRSM12 Card, Release 3</i> DOC-7810327=	Describes how to use the high-speed Frame Relay (FRSM-12-T3E3) commands that are available in the CLI of the Cisco MGX 8850 (PXM45) switch.
<i>Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12</i> OL-4539-01	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.2.00</i> OL-6478-01	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for the Cisco MGX 8880 Media Gateway, Release 5.0.02</i> OL-6493-01	Provides new feature and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX Route Processor Module (RPM-PR) IOS Release 12.3(11)T5 for MGX Releases 1.3.12 and 5.1.20</i> OL-7292-01	Provides upgrade and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco MGX Route Processor Module (RPM-XF) IOS Release 12.3(11)T5 for PXM45-based Switches, Release 5.1.20</i> OL-7059-01	Provides upgrade and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for the Cisco Voice Interworking Service Module (VISM), Release 3.3</i> OL-5357-01	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for the Cisco Voice Switch Service Module (VXSM), Release 5.0.70</i> OL-7088-01	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.
<i>Release Notes for Cisco WAN Manager, Release 15.1.00</i> OL-6495-01	Provides new feature, upgrade, and compatibility information, as well as information about known and resolved anomalies.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

Registered Cisco.com users (Cisco direct customers) can order a Cisco Documentation DVD (product number DOC-DOCDVD=) from the Ordering tool or Cisco Marketplace.

Cisco Ordering tool:

<http://www.cisco.com/en/US/partner/ordering/>

Cisco Marketplace:

<http://www.cisco.com/go/marketplace/>

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpk/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Ordering tool:
<http://www.cisco.com/en/US/partner/ordering/>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

Documentation Feedback

You can send comments about technical documentation to bug-doc@cisco.com.

You can submit comments by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—security-alert@cisco.com
- Nonemergencies—psirt@cisco.com



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

<http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on>

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

<http://www.cisco.com/go/marketplace/>

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

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- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



Introduction

This chapter introduces the MPSM-T3E3-155 and MPSM-16-T1E1 service modules that are supported in Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 (PXM1E/PXM45) switches. This chapter also describes the features of these cards.

These topics introduce and describe the features of the MPSM-T3E3-155 and MPSM-16-T1E1 service modules:

- [MPSM Card Types](#)
- [MPSM Card Features](#)

On the Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 (PXM1E/PXM45) switches, the PXM card is the controller card that controls the other cards on the switch. The other cards on the switch are called service modules. MPSM-T3E3-155 and MPSM-16-T1E1 cards are service modules. MPSM stands for Multi Protocol Service Module.

The main function of the MPSM-T3E3-155 and MPSM-16-T1E1 service modules is to provide simultaneous ATM and Frame Relay services over unchannelized, channelized and fractional (T1/E1) interfaces whose speed ranges from OC-3/STM-1 to a single DS0 (Fractional). Both cards let you configure individual physical ports for ATM or Frame Relay services. Additionally, the MPSM-16-T1E1 card supports MLPPP services.

The PXM cards are not covered in this manual. For information about the PXM cards, refer to the following documents:

- *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*
- *Cisco MGX 8800/8900 Series Command Reference, Release 5.2*
- *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2*

Changes to this Document Since Release 5.1

Table 1-1 summarizes the changes made to this document since Release 5.0.

Table 1-1 Changes to This Guide Since Release 5.1

Section and Link	Status	Description
MPSM Card Features, page 1-4	New	Added Multilink PPP feature to the MPSM-T3E3-155 card.
MPSM Service Class Templates, page 2-11	Update	Delete duplicate procedures for SCT selection.
ATM Configuration Concepts, page 3-18	Update	Updated for consistency with the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> .
Provisioning Multilink PPP Services on MPSM-T3E3-155 and MPSM-16-T1E1, page 5-1	Update	Updated procedures to include MPSM-T3E3-155 card.
Managing Multilink PPP Services, page 6-50	Update	Updated procedures to include MPSM-T3E3-155 card.
Command Reference, page 7-1	Update	Update the addcon, addppplink, addpppmux, addmpbundle, clrmpbundlecnt, clrppplnkcnt, clrpppmuxcnt, cnfmpbundle, cnfmpbundleparams, cnfppplink, cnfpppmux, delmpbundle, delppplink, delpppmux, dnmpbundle, dnppplink, dspmpbundle, dspmpbundlecnt, dspmpbundleparams, dspmpbundles, dspppplink, dspppplinks, dspppplnkcnt, dsppppmux, dsppppmuxcnt, dsptotals, upmpbundle, and upppplink commands for the MPSM-T3E3-155 card.
Chapter 7, “Command Reference.”	New	Add the dspmpbundleload, dspwinpathload, and dspwpbundles commands for the MPSM-T3E3-155 card.

MPSM Card Types

The MPSM-T3E3-155 is a single-height front card that accommodates one single-height back card. The MPSM-T3E3-155 front card supports both OC-3 (155) and T3/E3 interfaces, depending on which back card it is installed with.

The MPSM-16-T1E1 is a single-height front card that accommodates one single-height back card. The MPSM-16-T1E1 front card supports both T1 and E1 interfaces, depending upon which back card it is installed with.

Table 1-2 provides an overview of the MPSM-T3E3-155 and MPSM-16-T1E1 cell bus service modules documented in this manual. Note that the SFP-2-155 back card requires replaceable transceivers called Small Form Factor Pluggable (SFP) units. The SFPs are hot-pluggable, and the MPSM-T3E3-155 software detects the removal and insertion of the SFP. This means that you can remove and insert an SFP at any time without affecting the front card status. You can replace one type of SFP with a different type of SFP without causing a mismatch (for example, you can replace an MMFSR-1-155-SFP with an SMFLR-1-155-SFP). You can not replace a supported SFP with an unrecognized (non-supported) SFP.

**Note**

For specifications and illustrations of the MPSM-T3E3-155 card and the supported SFPs, see the *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2*

**Note**

For specifications and illustrations of the MPSM-16-T1E1 card, see the *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2*.

Table 1-2 Overview of the MPSM-T3E3-155 and MPSM-16-T1E1 Service Modules

Front Cards	Back Cards	Card Redundancy	Maximum Lines per Card	Supported SFPs	Maximum Connections
MPSM-T3E3-155	SFP-2-155	1:1 ¹	1 ²	MMF-1-155-SFP SMFSR-1-155-SFP SMFLR-1-155-SFP	4000
	SMB-2-155-EL	1:1 ¹	1 ²	none	
	BNC-3-T3E3	1:1 ¹	3	none	
MPSM-16-T1E1	RBBN-16-T1E1 ³	1:1 ¹	16	none	2000
	MCC-16-E1 ³	1:1 ¹	16	none	
	RBBN-16-T1E1-1N	1:N ⁴	16	none	
	MCC-16-E1-1N	1:N ⁴	16	none	
	RED-16-T1E1 ⁵	1:N ⁴	16	none	

1. Also called Y-cable redundancy.
2. The second interface is used only for APS.
3. Also supported by the AXSME-32-T1E1 and PXM1E-16-T1E1 service modules.
4. Requires the use of a redundancy connector (RCON) to support 1:N front card redundancy.
5. Redundant back card for either the RBBN-16-T1E1-1N or MCC-16-E1-1N back cards.

Support for the MPSM-T3E3-155 and MPSM-16-T1E1 cards by the PXM1E and PXM45 processor cards is shown in [Table 1-3](#).

Table 1-3 MPSM-T3E3-155 and MPSM-16-T1E1 Cards Supported by PXM1E and PXM45 Processors

Platform	Processor	MPSM-T3E3-155	MPSM-16-T1E1
MGX 8850	PXM45	No	No
	PXM45/B	Yes	Yes
	PXM45/C	Yes	Yes
	PXM1E	Yes	Yes
MGX 8850/B	PXM45/B	Yes	Yes
	PXM45/C	Yes	Yes
	PXM1E	Yes	Yes
MGX 8830	PXM1E	Yes	Yes
MGX 8830/B	PXM45/C	Yes	Yes

The preferred tools for configuring, monitoring, and controlling service modules is the Cisco WAN Manager application for equipment management and connection management. However, the command-line interface (CLI) also provides access to the service modules and is highly applicable during initial installation, troubleshooting, and any situation in which low-level control is useful.

MPSM Card Features

These topics describe the features of the MPSM cards:

- [MPSM-T3E3-155 Card Features](#)
- [MPSM-16-T1E1 Card Features](#)

MPSM-T3E3-155 Card Features

Designed as a replacement for the existing AXSM and FRSM-12-T3E3 service modules, the MPSM-T3E3-155 card is an Any Service Any Port (ASAP) cell bus service module that supports multiple interface types (OC-3, T3 and E3, and channelized T1, E1, VTs, and DS0s) and three service types (ATM, Frame Relay, and PPP).

The MPSM-T3E3-155 card supports the following features:

- Two channelized or unchannelized OC-3/STM-1 interfaces (the second of which is reserved for APS), or three channelized or unchannelized T3/E3 interfaces.
- 1:1 hot standby card redundancy (also known as Y-cable redundancy).
- Standard Cisco MGX RAS features.
- 1:1 and 1+1 intracard APS for SONET interfaces.
- 1+1 intercard APS for SONET interfaces.
- Onboard T1 BERT.
- Any Service Any Port (ASAP).
- Optional software features enabled through feature licenses.
- FDL/FEAC fault management and performance management.
- Support for SPVCs, SVCs, SPVPs and PVPs.
- Support for card and port service class templates.
- Support for FR-to-FR, ATM-to-ATM, FR-to-ATM, ATM-to-FR, ATM-to-VISM, and ATM-to-CE SPVC connection types, where one of the end-points resides on the MPSM-T3E3-155 card.
- Support for provisioning XPVC endpoints.
- Connections provisioned on the PNNI control plane on the MGX 8850 platform using the MSF switch architecture based VSI (Virtual Switch Interface).
- Support for OAM fault management.
- Statistics collection and upload to Cisco Wan Manager (CWM).
- Configuration upload to CWM.

- ATM Features:
 - Handles up to OC-3/STM1 worth of ATM traffic.
 - DS1/E1, NxDS1 or NxE1 (IMA), DS3/E3, OC-3/STM-1 logical ATM interfaces.
 - ATM trunking.
 - VPCs and VCCs.
 - Egress VC Shaping.
 - ABR VS/VD with support for external ABR segment.
 - ILMI on all ATM interfaces.
 - Maximum of 84 ATM UNI/NNI ports with signalling.
 - Maximum of 128 ATM VUNI/VNNI/EVUNI/EVNNI ports with signalling.
 - Maximum of 4000 ATM connections.
 - ATM traffic management features.
- IMA Features:
 - Support for IMA version 1.0 and 1.1 with fallback and auto restart support.
 - Up to 42 IMA groups supported.
 - Support for both T1 and E1 IMA links (T1 and E1 cannot be mixed in the same IMA group).
 - Maximum of 16 links per IMA group.
 - A total of 84 and 63 IMA links are available in T1 and E1 mode respectively.
 - Differential delay supported is 275 msec for T1 and 220 msec for E1.
 - CTC clocking mode supported.
- Frame Relay features:
 - Total Frame Relay throughput supported is OC3/STM1 for a frame length of 64 bytes and above.
 - NxDS0, DS1/E1, NxDS1 or NxE1 (MFR), DS3/E3, OC-3/STM-1 logical Frame Relay Interfaces.
 - Minimum port rate of 56 Kbps and a maximum of 44.209 Mbps (DS3 payload rate).
 - Support for a total of 1000 Frame Relay logical ports.
 - Maximum of 4000 Frame Relay connections.
 - FR UNI, FR NNI, and Frame Forwarding interfaces.
 - Frame Forwarding supported on a per logical port basis.
 - Support for frame sizes from 5 to 4510 bytes for Frame Relay.
 - Configurable 2-byte or 4-byte Frame Relay header support for broadband ports (speed greater than or equal to DS3/E3).
 - Only 2-byte Frame Relay header support for narrowband ports (speed less than DS3/E3).
 - Support for frame sizes from 3 to 10200 bytes for Frame Forwarding.
 - Ingress cut through mode of frame processing (No waiting for the complete frame to arrive. Frame processing and conversion to ATM cells starts as soon as header information is available).
 - FRF.5 (NIW) and FRF.8.1 (SIW) standards.

- LMI and Enhanced LMI on all Frame Relay interfaces.
- Support for FRF.1.2 Annex A for LMI frame segmentation.
- Frame Relay traffic management features.
- Multilink Frame Relay (MFR) features:
 - MFR supported on the 3-port channelized T3 back card and the 2-port channelized OC-3 back cards.
 - Maximum of 42 bundles with up to 12 links per bundle.
 - Support for Class A, Class B, and Class C bandwidth classes.
 - Bundling of links that belong to different channelized T3 (up to 3 T3s) or STS-1s (up to 3 STS-1s).
 - Aggregation of only full T1/E1 links. MFR bundles with NxDS0 links are not supported.
 - 12 bit sequence number format.
 - Two-byte Frame Relay header supported.
 - Support only for Extended Super Frame (ESF).
 - Both UNI and NNI mode as per FRF.16.1 are supported.
 - MPSM is transparent to end-to-end MFR and cannot be the initiating or terminating end for end-to-end MFR.
 - FRF.2.1 Annex 1 is supported on NNI-type bundle interfaces.
 - Maximum of 200 DLCIs per bundle.
- PPP features:
 - Support for PPP and MLPPP.
 - PPPMUX on a MLPPP bundle basis.
 - Interworking between PPP and PPPoATM.
 - Maximum of 84 MLPPP bundles.
 - Maximum of 6 PPP links per MLPPP bundle.
 - Maximum of 84 PPP links per card.
 - Dynamic (auto) PVC bandwidth on a MLPPP bundle basis.
 - NxDS0 and channelized T1/E1 PPP links.
 - Layer 2 QoS support using priority queues for voice, control, and general traffic.
 - 1:1 hot standby front card redundancy supported.
 - Multilink fragmentation in transmit direction (toward line) not supported.
 - IP Radio Access Network (IP-RAN) supported.

MPSM-16-T1E1 Card Features

The MPSM-16-T1E1 card is an Any Service Any Port (ASAP) cell bus service module that supports T1 and E1 interface types and three service types (ATM, Frame Relay, and PPP).

The MPSM-16-T1E1 card supports the following features:

- Physical interfaces configurable as channelized or unchannelized ports for 16 T1 or E1 interfaces.
- Fault management and performance management for T1 and E1 interfaces.
- 1:1 hot standby card redundancy.
- 1:N cold standby card redundancy.
- Standard Cisco MGX RAS features.
- Onboard BERT support for NxDS0 and T1/E1 interfaces.
- Any Service Any Port (ASAP).
- Optional software features enabled through feature licenses.
- Support for SPVCs, SVCs, SPVPs, and PVPs.
- Support for card and port service class templates.
- Maximum of 2000 connections. Any combination of Frame Relay and ATM connections is allowed.
- Support for FR-FR, FR-ATM, ATM-FR, ATM-VISM, and ATM-CE SPVC connection types, where one of the end-points resides on the MPSM-16-T1E1 card.
- Connections provisioned on the PNNI control plane on the MGX 8850 platform using the MSF switch architecture based VSI (Virtual Switch Interface).
- Support for provisioning XPVC endpoints.
- Support for OAM fault management.
- Statistics collection and upload to Cisco Wan Manager (CWM).
- Configuration upload to CWM.
- ATM features:
 - Handles up to 16 T1/E1 worth of ATM traffic.
 - T1 and E1 ATM interfaces.
 - ATM trunking.
 - VPCs and VCCs.
 - Egress VC Shaping.
 - ABR VS/VD with support for external ABR segment.
 - ILMI on all ATM interfaces.
 - Maximum of 32 ATM UNI/NNI/VUNI/VNNI/EVUNI/EVNNI ports with signalling.
 - Maximum of 2000 ATM connections.
 - ATM traffic management features (includes ABR VS/VD).
 - VCC/VPC shaping.

- IMA Features:
 - Support for IMA version 1.0 and 1.1 with fallback and auto restart support.
 - Up to 16 IMA groups supported.
 - Support for both T1 and E1 IMA links (T1 and E1 cannot be mixed in the same IMA group).
 - Maximum of 8 links per IMA group.
 - Differential delay supported is 275 msec for T1 and 220 msec for E1.
 - CTC and ITC clocking modes supported.
- Frame Relay features:
 - Handles up to 16 T1/E1 worth of Frame Relay traffic.
 - Ports can be added on T1/E1 lines or NxDS0 channels in T1/E1 lines.
 - Maximum Frame Relay port bandwidth is 1.984 Mbps (E1 line with 31 timeslots).
 - Support for 56 Kbps ports.
 - Support for a total of 496 Frame Relay logical ports (16 x 31 timeslots in E1).
 - Maximum of 2000 Frame Relay connections.
 - FR UNI, FR NNI, and Frame Forwarding interfaces.
 - Ingress cut through mode of frame processing (No waiting for the complete frame to arrive. Frame processing and conversion to ATM cells starts as soon as header information is available).
 - Maximum frame size supported is 4510 bytes.
 - Support for 2-byte Frame Relay header.
 - Ratio based egress servicing.
 - Support for FRF.5 (NIW) and FRF.8.1 (SIW) standards.
 - LMI and Enhanced LMI on all Frame Relay interfaces.
 - Frame Relay traffic management features.
- PPP features:
 - Support for PPP and MLPPP.
 - PPPmux on a MLPPP bundle basis.
 - Interworking between PPP and PPPoATM.
 - Maximum of 16 MLPPP bundles.
 - Maximum of 4 PPP links per MLPPP bundle.
 - 1 PPP link per physical line.
 - Dynamic (auto) PVC bandwidth on a MLPPP bundle basis.
 - NxDS0 and T1/E1 PPP links.
 - Layer 2 QoS to minimize delay of delay sensitive traffic and prioritize control messages.
 - Support for 4 strict priority queues.
 - Support for the IP Radio Access Network (IP-RAN) solution with the MWR 1900 and the RPM-XF.
 - 1:N cold standby front card redundancy supported.



Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication

This chapter describes how to prepare MPSM-T3E3-155 and MPSM-16-T1E1 cards and lines for communications with other switches and customer premises equipment (CPE) by using the command-line interface (CLI).

These topics describe how to prepare MPSM-T3E3-155 and MPSM-16-T1E1 cards and lines for communication:

- [Preparing for Provisioning](#)
- [Quickstart Provisioning Procedures](#)
- [General MPSM Provisioning Procedures](#)



Note

Before you can bring up lines and configure connections, you must first complete the general switch configuration procedures described in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

Preparing for Provisioning

Before you begin configuring lines and ports on MPSM-T3E3-155 and MPSM-16-T1E1 service modules, you need to initialize the cards you plan to provision. Then you should develop and implement a plan for the card and line redundancy options available for each service module. This plan determines how service modules and their back cards must be installed in the chassis, and how lines must connect to the cards before software configuration starts. Without a plan developed for these services, a configuration change for any of these services has the potential to interrupt service and can require substantial configuration teardown.

The MPSM-T3E3-155 card supports 1:1 card redundancy, and the MPSM-16-T1E1 card supports both 1:1 and 1:N card redundancy. The MPSM-T3E3-155 card supports both intercard and intracard APS.

The MPSM-T3E3-155 and MPSM-16-T1E1 service modules also require the management of feature licenses. The required feature licenses are described in “[MPSM Feature Licenses](#)”.

For instructions on initializing cards, configuring card and line redundancy, and managing MPSM feature licenses on the PXM processor card, refer to the:

- *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2.*
- *Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.2.00.*
- *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2.*

MPSM Feature Licenses

The MPSM-T3E3-155 and MPSM-16-T1E1 cards require feature licenses to enable the optional MPSM features listed in [Table 2-1](#).

Table 2-1 *MPSM-T3E3-155 and MPSM-16-T1E1 Licensed Features*

Licensed Feature	Feature Description	MPSM-T3E3-155	MPSM-16-T1E1
Multiservice	The Multiservice license allows the simultaneous provisioning of both ATM and Frame Relay services. One license of this type is required by a licensable service module.	Supported	Supported
Multi link	The Multilink license allows the provisioning of IMA (Inverse Multiplexing over ATM) in the ATM service context and MFR (Multilink Frame Relay) in the Frame Relay service context. One license of this type is required by a licensable service module.	Supported	Supported (IMA only)
Rate-Control	The Rate-Control license allows the use of the Standard ABR (Available Bit Rate) feature for Frame Relay connections. Note ATM ABR is automatically enabled on the card and does not require a license. One license of this type is required by a licensable service module.	Supported	Supported

Table 2-1 MPSM-T3E3-155 and MPSM-16-T1E1 Licensed Features (continued)

Licensed Feature	Feature Description	MPSM-T3E3-155	MPSM-16-T1E1
Channelization	The Channelization license allows channelization on STS-3/STM-1, STS-1/STM-0, and DS3 (T3) paths. You can add ATM service on paths down to DS1, and you can add Frame Relay service on paths from DS3 down to DS0. One license of this type is required by a licensable service module.	Supported	Not Supported
Point-to-Point Protocol (PPP)	The PPP license allows the provisioning of PPP Multiplexing (PPPMux) and Multilink PPP (MLPPP) features. One license of this type is required by a licensable service module.	Not Supported	Supported

You must have the required license installed in the PXM license pool if you want to use any of the features described. To install and manage licenses on the PXM card, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*

For instructions on displaying, moving, and allocating feature licenses, and managing feature license alarms on the MPSM-T3E3-155 and MPSM-16-T1E1 cards, see [“Managing Feature Licenses”](#) in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”

Quickstart Provisioning Procedures

These quickstart procedures contain abbreviated procedures for preparing MPSM-T3E3-155 and MPSM-16-T1E1 cards and lines for communication:

- [Preparing Cards and Lines for Configuration Quickstart](#)
- [Moving MPSM Feature Licenses Quickstart](#)
- [Channelizing DS3 \(T3\) Lines Configuration Quickstart](#)
- [Channelizing Sonet Lines Configuration Quickstart](#)
- [Channelizing SDH Lines Configuration Quickstart](#)

These procedures are provided as an overview and as a quick reference for those who already have configured Cisco MGX switches.

Preparing Cards and Lines for Configuration Quickstart

This procedure describes how to prepare MPSM-T3E3-155 and MPSM-16-T1E1 cards for configuration:

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	Command	Purpose
Step 1	<code>username</code> <code><password></code>	Start a configuration session with the active PXM card. Note To perform all the procedures in this quickstart procedure, you must log in as a user with GROUP1 privileges or higher.
Step 2	<code>setrev</code> Related commands: <code>dspcds</code>	From the active PXM card, initialize MPSM-T3E3-155 and MPSM-16-T1E1 cards by setting the firmware version level for each card. Note When setting the firmware version level for the MPSM-16-T1E1 card, use the <code>-service</code> option to specify MLPPP services. For instructions on initializing cards, refer to the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> .
Step 3	<code>addred <options></code>	From the active PXM card, define which cards are operating as redundant cards. Note The MPSM-T3E3-155 card supports 1:1 card redundancy and the MPSM-16-T1E1 card supports both 1:1 and 1:N card redundancy. For instructions on adding card redundancy, refer to the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> .
Step 4	<code>cc <options></code>	Change to an active MPSM-T3E3-155 or MPSM-16-T1E1 card from which you will select a card SCT.
Step 5	<code>cnfcdset <sctid></code> Related commands: <code>dspcd</code>	Apply ATM or Frame Relay communications parameters from a preconfigured Service Class Template (SCT) file to all communications between the card you are configuring and the other cards in the switch. See the “Selecting and Viewing Service Class Templates” section, which appears later in this chapter.
Step 6	<code>upln <bay.line></code> Related commands: <code>dsplns</code> <code>dspln -type <bay.line></code>	Bring up and configure lines. This step establishes physical layer connectivity between two switches. See the “Setting Up Lines” section, which appears later in this chapter.

	Command	Purpose
Step 7	cnfln <options> Related commands: dsplns dspln <bay.line>	Configure lines. To configure T1 lines, see the “ Configuring DS1 (T1) Lines ” section, which appears later in this chapter To configure E1 lines, see the “ Configuring E1 Lines ” section, which appears later in this chapter To configure T3 lines, see the “ Configuring DS3 (T3) Lines ” section, which appears later in this chapter. To configure E3 lines, see the “ Configuring E3 Lines ” section, which appears later in this chapter. To configure SONET/SDH lines, see the “ Configuring SONET/SDH Lines ” section, which appears later in this chapter.
Step 8	addapsln <workingIndex> <protectIndex> <archmode>	If you are using APS redundancy on the current card, configure a redundant relationship between two redundant lines. Note APS is supported only on the MPSM-T3E3-155 card using the SFP-2-155 or SMB-2-155-EL back card. See the “ Establishing Redundancy Between Two Lines with APS ” section, which appears later in this chapter.

Moving MPSM Feature Licenses Quickstart

To move MPSM feature licenses from the MPSM-T3E3-155 and MPSM-16-T1E1 cards into the PXM license pool, perform the following steps:

	Command	Purpose
Step 1	username <password>	Start a configuration session.
Step 2	dsplccd	View the feature licenses that have been installed on the MPSM-T3E3-155 or MPSM-16-T1E1 card. See the “ Displaying Feature Licenses ” section in Chapter 6 , “ Card Management on MPSM-T3E3-155 and MPSM-16-T1E1 .”

	Command	Purpose
Step 3	moveLIC	Move the MPSM feature licenses programmed on the MPSM-T3E3-155 or MPSM-16-T1E1 card to the switch license pool on the PXM processor card. See the “Moving MPSM Feature Licenses” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”
Step 4	dsplics Related commands: cnflic <options> dspllicds dspllicd <slot> dsplicalms Note These related commands are performed on the PXM processor card.	View the MPSM feature licenses installed in the PXM license pool. See the “Displaying Feature Licenses” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.” Note The dsplics command is performed on the PXM processor card.



Note To install spare feature licenses into the PXM license pool, transfer feature licenses from one switch to another switch, and resolve feature license alarms, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*

Channelizing DS3 (T3) Lines Configuration Quickstart



Note The MPSM-T3E3-155 card requires a license for channelization. Without a channelization license, you cannot channelize lines. Enter the **dspllicd** command to view the feature licenses that have been assigned to or are needed by the cards.

This procedure describes how to create channelized DS3 paths on the MPSM-T3E3-155 card:

	Command	Purpose
Step 1	username <password>	Start a configuration session with the active PXM card. Note To perform all the procedures in this quickstart procedure, you must log in as a user with GROUP1 privileges or higher.
Step 2	cc <options>	Change to an active MPSM-T3E3-155 card on which you will configure a path.
Step 3	upln	Bring up a line (<i>bay.line</i>). See the “Setting Up Lines” section, which appears later in this chapter.

	Command	Purpose
Step 4	cnfln <bay.line> -lt <LineType> -chan 2 Related commands: dsplns dspln -type <bay.line>	From the active card, configure the DS3 line with a valid line type for channelization, and enable channelization on the line. See the “ Configuring DS3 (T3) Lines ” section, which appears later in this chapter.
Step 5	uppath [-pathfilter] <pathid>	Bring up the DS1 sub-paths that were created in Step 4. See the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter.
Step 6	cnfpath <options> Related commands: dsppath dspaths	Configure the DS1 sub-paths. See the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter.

Channelizing Sonet Lines Configuration Quickstart



Note

The MPSM-T3E3-155 card requires a license for channelization. Without a channelization license, you cannot channelize SONET lines. Enter the **dsplccd** command to view the feature licenses that have been assigned to or are needed by the cards.

This procedure describes how to create channelized SONET paths on the MPSM-T3E3-155 card:

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	Command	Purpose
Step 1	<i>username</i> <password>	Start a configuration session with the active PXM card. Note To perform all the procedures in this quickstart procedure, you must log in as a user with GROUP1 privileges or higher.
Step 2	cc <options>	Change to an active MPSM-T3E3-155 card on which you will configure a path.
Step 3	upln	Bring up a line (<i>bay.line</i>). When you bring up a line, the corresponding SONET path has a width of 3. See the “ Setting Up Lines ” section, which appears later in this chapter.
Step 4	cnfpath -sts <pathid> -width <width spec> Related commands: dsppath dspaths	From the active MPSM-T3E3-155 card, configure the SONET/SDH path width. See the “ Channelizing a SONET Line ” section, which appears later in this chapter.
Step 5	uppath -sts <pathid> Related commands: dsppath dspaths	Bring up the SONET/SDH path. See the “ Bringing Up and Configuring SONET Paths ” section, which appears later in this chapter.

	Command	Purpose
Step 6	cnfpath -sts <pathid> -payload <sts_au_payload_type> Related commands: dsppath dsppaths	Configure the payload type for the STS path you are channelizing. See the “ Bringing Up and Configuring SONET Paths ” section, which appears later in this chapter.
Step 7	uppath [-pathfilter] <pathid>	Bring up the sub-paths that were created in Step 6. To bring up DS3 paths, see the “ Bringing Up and Configuring a DS3 (T3) Path ” section, which appears later in this chapter To bring up E3 paths, see the “ Bringing Up and Configuring E3 Paths ” section, which appears later in this chapter To bring up DS1 paths, see the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter
Step 8	cnfpath <options> Related commands: dsppath dsppaths	Configure the sub-paths. To configure DS3 paths, see the “ Bringing Up and Configuring a DS3 (T3) Path ” section, which appears later in this chapter To configure E3 paths, see the “ Bringing Up and Configuring E3 Paths ” section, which appears later in this chapter To configure DS1 paths, see the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter To configure TUG-3s, see the “ Bringing Up and Configuring TUG-3s ” section, which appears later in this chapter.

Channelizing SDH Lines Configuration Quickstart



Note

The MPSM-T3E3-155 card requires a license for channelization. Without a channelization license, you cannot channelize SDH lines. Enter the **dsplccd** command to view the feature licenses that have been assigned to or are needed by the MPSM-T3E3-155 and MPSM-16-T1E1 cards.

This procedure describes how to create channelized SDH paths on the MPSM-T3E3-155 card:

	Command	Purpose
Step 1	username <password>	Start a configuration session with the active PXM card. Note To perform all the procedures in this quickstart procedure, you must log in as a user with GROUP1 privileges or higher.
Step 2	cc <options>	Change to an active MPSM-T3E3-155 card on which you will configure a path.

	Command	Purpose
Step 3	upln	Bring up a line (<i>bay.line</i>). When you bring up a line, the corresponding SDH path has a width of 3. See the “ Setting Up Lines ” section, which appears later in this chapter.
Step 4	cnfln <i>-<bay.line></i> -slt 2 -clk <i><clockSource></i>	Configure the line you brought up in Step 3 to be an SDH line. See the “ Configuring SONET/SDH Lines ” section, which appears later in this chapter.
Step 5	cnfpath -sts <i><pathid></i> -width <i><width spec></i> Related commands: dsppath dsppaths	From the active MPSM-T3E3-155 card, configure the SDH path width. See the “ Channelizing an SDH Line ” section, which appears later in this chapter.
Step 6	uppath -sts <i><pathid></i> Related commands: dsppath dsppaths	Bring up the SDH path. See the “ Bringing Up and Configuring SDH Paths ” section, which appears later in this chapter.
Step 7	cnfpath -sts <i><pathid></i> -payload <i><sts_au_payload_type></i> Related commands: dsppath dsppaths	Configure the payload type for the STS path you are channelizing. See the “ Bringing Up and Configuring SDH Paths ” section, which appears later in this chapter.
Step 8	uppath [-pathfilter] <i><pathid></i>	Bring up the sub-paths that were created in Step 7. To bring up DS3 paths, see the “ Bringing Up and Configuring a DS3 (T3) Path ” section, which appears later in this chapter To bring up E3 paths, see the “ Bringing Up and Configuring E3 Paths ” section, which appears later in this chapter To bring up DS1 paths, see the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter.
Step 9	cnfpath <i><options></i> Related commands: dsppath dsppaths	Configure the sub-paths. To configure DS3 paths, see the “ Bringing Up and Configuring a DS3 (T3) Path ” section, which appears later in this chapter To configure E3 paths, see the “ Bringing Up and Configuring E3 Paths ” section, which appears later in this chapter To configure DS1 paths, see the “ Bringing Up and Configuring DS1(T1) and E1 Paths ” section, which appears later in this chapter To configure TUG-3s, see the “ Bringing Up and Configuring TUG-3s ” section, which appears later in this chapter.

General MPSM Provisioning Procedures

These topics and procedures describe preparing MPSM-T3E3-155 and MPSM-16-T1E1 cards for communication:

- [Selecting and Viewing Service Class Templates](#)
- [Setting Up Lines](#)
- [Establishing Redundancy Between Two Lines with APS](#)
- [Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 \(T3\) Lines](#)
- [Setting the Service Context on MPSM-T3E3-155 and MPSM-16-T1E1 Cards](#)

Selecting and Viewing Service Class Templates

These topics and procedures describe selecting and viewing Service Class Templates on the MPSM-T3E3-155 and MPSM-16-T1E1 cards:

- [Overview of Service Class Templates](#)
- [MPSM Service Class Templates](#)
- [Selecting a Card SCT](#)
- [Selecting a Port SCT](#)

Overview of Service Class Templates

A Service Class Template (SCT) is a file that contains default configuration data for switch connections and for configuring the hardware to support connections. When you configure a connection, or when an SVC is established, the switch analyzes the connection setup request data, any local configuration data, and the SCTs that apply to the port and to the card. For example, if an SPVC configuration does not include required data for the requested class of service (COS), default values from the SCT files are used. If an SVC request or SPVC configuration specifies configuration values that are different from the SCT values, the specified values override the default SCT values.

There are two types of SCTs: card SCTs and port SCTs. Card SCTs define configuration parameters for the hardware that transfers data between the a service module and the switch back plane. You can assign one card SCT to each service module.

Port SCTs define configuration parameters for the hardware that transfers data between a service module and a communication line to another switch or CPE. Port SCTs are assigned when a port is configured, and you can use different port SCTs on the same card, provided that the port SCT you select is designed for that card type.

Some SCT parameters control the service module hardware, and others are used as default values for connection parameters. A complete discussion of the SCT parameters is beyond the scope of this book.

SCT parameters are used to do the following:

- Connection policing.
- Connection admission control (CAC).
- Provide default connection parameters.
- Provide connection threshold parameters.
- Set up class of service buffer (COSB) parameters and threshold values.

SCTs simplify configuration by providing default values that will work for most connections. This reduces the number of parameters that need to be defined when setting up connections. Without SCTs, you need to perform a lot of detailed manual configuration on each and every port on the switch. This is time consuming and error prone. Typically, traffic profiles are defined by a handful of traffic engineering experts who understand the service level agreements and expected traffic pattern on the ports. These experts define the SCTs for each port in the system. Once the SCT is applied on the port, you do not need to (re)configure the switch. The parameters in the SCTs define generic thresholds and priorities of queues that can be understood without having to go through the programming details of Queuing engines, such as QE1210.

When configuring a service module card SCT, your goal should be to select the card SCT that will support the majority of planned connections on that card. When configuring a service module port SCT, your goal should be to select the port SCT that supports the majority of planned connections on that port.

Each service module contains default SCT parameters that you can use for communications. Cisco also supplies additional SCTs that you can use to better support communications. If none of the Cisco supplied SCTs meet your needs, you can use Cisco WAN Manager (CWM) to create your own custom SCTs. You can not create or modify SCT files using the CLI. For more information on configuring SCTs and SCT parameters, refer to the *Cisco WAN Manager User's Guide, Release 15.1*.

For information on downloading, registering, and managing SCTs on the PXM card, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*

MPSM Service Class Templates

SCT files are applicable to the MPSM-T3E3-155 and MPSM-16-T1E1 cards. Each SCT is classified by card or service module type, by whether it is a card or port SCT, and as either policing or non-policing. Although card SCTs may contain policing parameters, these parameters are ignored. Typically, policing SCTs are used on UNI ports at the edge of the ATM network and control traffic entering the network. Non-policing SCTs are typically on trunk ports that interconnect switches within the network.



Note

If traffic is properly controlled at the edges of an ATM network, there should be no need for policing within the network.

[Table 2-2](#) lists the SCTs supplied by Cisco for the MPSM-T3E3-155 and MPSM-16-T1E1 cards. For the very latest information on Cisco SCTs, refer to the *Release Notes for Cisco MGX 8850 (PXM1E/PXM45), Cisco MGX 8950, and Cisco MGX 8830 Switches, Release 5.2.00*

Table 2-2 Cisco Provided SCTs for the MPSM-T3E3-155 and MPSM-16-T1E1

Card Type	SCT Name	SCT Type	SCT ID	Policing ¹	Notes
MPSM-T3E3-155	MPSM155_SCT.CARD.1.V1	Card	1	N/A	This is the only card SCT for this card.
	MPSM155_SCT.PORT.1.V1	Port	1	On	Use for UNI ports greater than 4 T1 in bandwidth.
	MPSM155_SCT.PORT.2.V1		2	Off	Use for NNI ports greater than 4 T1 in bandwidth.
	MPSM155_SCT.PORT.3.V1		3	On	Use for UNI ports less than or equal to 4 T1 in bandwidth.
	MPSM155_SCT.PORT.4.V1		4	Off	Use for NNI ports less than or equal to 4 T1 in bandwidth.
MPSM-16-T1E1	MPSM16T1E1_SCT.CARD.1.V1	Card	1	N/A	This is the only card SCT for this card.
	MPSM16T1E1_SCT.PORT.3.V1	Port	3	On	Use for UNI ports less than or equal to 4 T1 in bandwidth. For UNI ports greater than 4 T1 in bandwidth, create a new custom SCT.
	MPSM16T1E1_SCT.PORT.4.V1	Port	4	Off	Use for NNI ports less than or equal to 4 T1 in bandwidth. For NNI ports greater than 4 T1 in bandwidth, create a new custom SCT.

1. Cisco recommends using SCTs with policing enabled for UNI ports and using SCTs with policing disabled for NNI ports.

**Note**

For information about managing card and port SCTs on MPSM-T3E3-155 and MPSM-16-T1E1 cards, refer to [Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1”](#).

Selecting a Card SCT

A card SCT defines the queue parameters for the destination slot based cell queues towards the backplane. The same card SCT may be used for multiple cards of the same card type.

When an MPSM-T3E3-155 or MPSM-16-T1E1 card is powered up for the first time, the default card SCT file is used. The default SCT file is 0.

**Note**

For information about managing card SCTs on MPSM-T3E3-155 and MPSM-16-T1E1 cards, refer to the [“Managing Card SCTs”](#) section on page 6-9.

Selecting a Port SCT

A port SCT defines queue parameters that apply to egress queues on a port. You can use the same port SCT for multiple ports. Port SCTs can be changed with connections provisioned on the port. However, the port needs to be administratively down to effect this change. Hence this is service affecting.

**Note**

For information on managing port SCTs on MPSM-T3E3-155 and MPSM-16-T1E1 cards, refer to the “[Managing Port SCTs](#)” section on page 6-15.

Setting Up Lines

The first step in configuring MPSM-T3E3-155 and MPSM-16-T1E1 lines is to bring up and configure the physical lines that are connected to the switch. These topics describe how to do the following tasks:

- [Bringing Up Lines](#)
- [Configuring DS1 \(T1\) Lines](#)
- [Configuring E1 Lines](#)
- [Configuring DS3 \(T3\) Lines](#)
- [Configuring E3 Lines](#)
- [Configuring SONET/SDH Lines](#)
- [Verifying Line Configuration](#)

Bringing Up Lines

Installing an MPSM-T3E3-155 card can add from 1 to 3 lines to your switch. Installing an MPSM-16-T1E1 card can add from 1 to 16 lines. You must bring up a line before you can configure the line or provision services on the line.

Before a line is brought up, or after it is brought down, the switch does not monitor the line. The port status light for the line flashes green, and all line alarms are cleared. The flashing green light means the line is unprovisioned.

When you bring up a line, the switch starts monitoring the line. The port status light is green when physical layer communications are established with a remote switch. If physical layer communications problems are detected, the port status light turns red, and alarms are reported.

**Note**

APS protection lines for intracard redundancy should be left down. APS automatically brings up each line at the appropriate time. For general information on APS line redundancy, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*. For information on configuring APS lines, see the “[Establishing Redundancy Between Two Lines with APS](#)” section later in this chapter.

**Note**

On the OC3 back cards (the SFP-2-155 and the SMB-2-155-EL), line 2 is always reserved for APS.

**Tip**

To minimize the number of alarms and failed port status lamps (which display red), keep lines down until they are ready for operation.

To bring up a line on the switch, use the following procedure.

Step 1 Establish a configuration session using a user name with GROUP1 privileges or higher.

Step 2 Select the card on which you want to bring up a line with the **cc** command.

```
M8850_NY.7.PXM.a > cc <slotnumber>
```

Replace *<slotnumber>* with the number of the slot in which the card is installed. Valid slot numbers are as follows:

- Cisco MGX 8850 (PXM1E/PXM45) — slots 1-6, 9-14, 17-22, and 25-30.
- Cisco MGX 8830 — slots 3-6 and 10-13.

Verify your card selection by viewing the switch prompt, which should list the slot number and the card type.

Step 3 Enter the **upln** command after the switch prompt.

```
M8850_NY.13.MPSM155 [ATM] .a > upln <bay.line>
```

Replace *<bay>* with 1, and replace *<line>* with the number that corresponds to the back card port to which the line is connected, as shown in the following example:

```
M8850_NY.13.MPSM155 [ATM] .a > upln 1.1
```



Note The bay number is always 1.

Step 4 Enter the **dsplns** command to ensure the appropriate line is in the “Up” state.

```
M8850_NY.13.MPSM155 [ATM] .a > dsplns
```

Sonet Line	Line State	Line Type	Line Lpbk	Frame Scramble	Medium Line Coding	Medium Line Type	Valid Intvls	Alarm State	APS Enabled	Channelized
1.1	Up	sonetSts3c	NoLoop	Enable	NRZ	ShortSMF	2	Clear	Disable	No
1.2	Down	sonetSts3c	NoLoop	Enable	NRZ	Other	0	Clear	Disable	No

The line state column shows whether each line is up or down. The line state is the administrative intent for the line. For example, a line is reported as Down until an administrator brings up the line. Once the administrator brings up the line, the line state remains Up until the administrator brings the line down with the **dnln** command.

The alarm state indicates whether the line is communicating with a remote switch. When the alarm state is reported as Clear, the physical devices at each end of the line have established physical layer communications. ATM or Frame Relay connectivity is established later when interfaces or ports are configured on the line.

Configuring DS1 (T1) Lines

All line types are brought up with a default configuration. When configuring trunks between two Cisco MGX switches, you may be able to accept the defaults for each switch and thus minimize configuration time. When configuring a line to another type of device, ensure that both devices are using the same configuration parameters on the shared line.

The following procedure describes how to configure T1 lines.

Step 1 Establish a configuration session using a user name with GROUP1 privileges or higher.

- Step 2** If you do not know the line number you want to configure, enter the **dsplns** command to display a list of the lines.

```
M8850_NY.13.MPSM16[FR].a > dsplns
```

Remember that you cannot configure a line until you have brought it up as described in the previous section, “Bringing Up Lines”.

- Step 3** To display the configuration for a line, enter the **dspln** command. For example:

```
M8850_NY.13.MPSM16[FR].a > dspln 1.1
```

For more information, see “Verifying Line Configuration”, which appears later in this chapter.

- Step 4** To configure a T1 line, enter the **cnfln** command, as shown in the following example.

```
mpsm_node1.9.MPSM16T1E1[ATM] cnfln <bay.line> -lt<Line Type> -len<LineLength> -clk <clockSource>
-lc <Line Coding>
```

Table 2-3 lists the parameter descriptions for configuring T1 lines.

Table 2-3 Parameters for Configuring T1 Lines with the *cnfln* Command

Parameter	Description
<bay.line>	Replace <i>bay</i> with 1 , and replace <i>line</i> with the number that corresponds to the back card port to which the line is connected. The bay number is always 1. Use the dsplns command to see all line numbers on the current MPSM-16-T1E1.
-lt	Describes the Framing Type: 2 = D_dsx1LineType_dsx1ESF, 3 = D_dsx1LineType_dsx1D4
-len	T1 Line Length in meters
-clk	Source for Transmit Clock 1 = loop timing 2 = local timing
-lc	2 => B8ZS 5 => AMI

- Step 5** To verify your configuration changes, enter the **dspln** command.

Configuring E1 Lines

All line types are brought up with a default configuration. When configuring trunks between two Cisco MGX switches, you may be able to accept the defaults for each switch and thus minimize configuration time. When configuring a line to another type of device, ensure that both devices are using the same configuration parameters on the shared line.

The following procedure describes how to configure E1 lines.

- Step 1** Establish a configuration session using a user name with GROUP1 privileges or higher.
- Step 2** If you do not know the line number you want to configure, enter the **dsplns** command to display a list of the lines.

```
M8850_NY.13.MPSM16 [FR] .a > dsplns
```

Remember that you cannot configure a line until you have brought it up as described in the previous section, “Bringing Up Lines”.

- Step 3** To display the configuration for a line, enter the **dspln** command. For example:

```
M8850_NY.13.MPSM16 [FR] .a > dspln 1.1
```

For more information, see “Verifying Line Configuration”, which appears later in this chapter.

- Step 4** To configure a E1 line, enter the **cnfln** command, as shown in the following example.

```
m8sm_node1.9.MPSM16T1E1 [ATM] cnfln <bay.line> -lt<Line Type> -clk <clockSource> -lc <Line Coding>
```

Table 2-4 lists the parameter descriptions for configuring E1 lines.

Table 2-4 Parameters for Configuring E1 Lines with the cnfln Command

Parameter	Description
<bay.line>	Replace <i>bay</i> with 1 , and replace <i>line</i> with the number that corresponds to the back card port to which the line is connected. The bay number is always 1. Use the dsplns command to see all line numbers on the current MPSM-16-T1E1.
-lt	Defines if CRC and TS-16 Multi-framing are enabled for E1. 4 = D_dsx1LineType_dsx1E1, 5 = D_dsx1LineType_dsx1E1CRC, 6 = D_dsx1LineType_dsx1E1MF, 7 = D_dsx1LineType_dsx1E1CRCMF
-clk	Source for Transmit Clock 1 = loop timing 2 = local timing
-lc	3 => HDB3 (default) 5 => AMI

- Step 5** To verify your configuration changes, enter the **dspln** command.

Configuring DS3 (T3) Lines

All line types are brought up with a default configuration. When configuring trunks between two Cisco MGX switches, you may be able to accept the defaults for each switch and thus minimize configuration time. When configuring a line to another type of device, ensure that both devices are using the same configuration parameters on the shared line.

The following procedure describes how to configure T3 lines.

- Step 1** Establish a configuration session using a user name with GROUP1 privileges or higher.
- Step 2** If you do not know the line number you want to configure, enter the **dsplns** command to display a list of the lines.

```
M8850_NY.13.MPSM16 [FR] .a > dsplns
```

Remember that you cannot configure a line until you have brought it up as described in the previous section, “[Bringing Up Lines](#)”.

- Step 3** To display the configuration for a line, enter the **dspln** command. For example:

```
M8850_NY.13.MPSM16 [FR] .a > dspln 1.1
```

For more information, see “[Verifying Line Configuration](#)”, which appears later in this chapter.

- Step 4** To configure a T3 line, enter the **cnfln** command, as shown in the following example.

```
M8850_NY.13.MPSM16 [FR] .a > cnfln <bay.line> -lt <LineType> -len <Length>
-oof <OOFCriteria> -cb <AIScBitsCheck> -rfeac <RcvFEACValidation> -sc <sendCode>
-clk <clockSource> -chan <channelization>
```

[Table 2-5](#) lists the parameter descriptions for configuring T3 lines.

Table 2-5 Parameters for Configuring T3 Lines with the *cnfln* Command

Parameter	Description
<i>bay.line</i>	<p>Replace <i>bay</i> with 1, and replace <i>line</i> with the number that corresponds to the back card port to which the line is connected (in the range from 1 through 3).</p> <p>The bay number is always 1.</p> <p>Use the dsplns command to see all line numbers on the current MPSM-T3E3-155.</p>
-lt <LineType>	<p>1 = ds3cbitadm</p> <p>2 = ds3cbitplcp</p> <p>9 = dsx3M23</p> <p>11 = dsx3CbitParity</p> <p>17 = e3g832frmronly</p> <p>18 = e3g751frmronly</p>

Table 2-5 Parameters for Configuring T3 Lines with the *cnfln* Command (continued)

Parameter	Description
-len <Length>	Enter the length of the line in meters, in the range from The range 0 through 64000 meters. For example, -len 2 . Note On a T3 line, you must set the line length to match the physical length of the cable. Setting this value to a value higher than the actual length of the cable may cause a higher output drive from the card. However, this will not impact the overall power consumption or heat dissipation of the card.
-oof <OOFCriteria>	Specifies the threshold for triggering an out-of-frame condition. Enter the keyword (-oof) followed by the <i>OOFCriteria</i> identifier. For example: -oof The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error.
-cb <AIScBitsCheck>	Determines whether the node checks the C-bit in response to AIS. Enter the keyword (-cb) followed by the <i>AIScBitsCheck</i> identifier. For example: -cb 2 The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = check the C-bit • 2 = ignore the C-bit
-rfeac <RcvFEACValidation>	Value to set FEAC (far-end alarm and control) code validation criteria. Enter the keyword (-rfeac) followed by the <i>RcvFEACValidation</i> identifier. The possible values for <i>LineRcvFEACValidation</i> are: <ul style="list-style-type: none"> • 1 = 4 out of 5: a valid FEAC code is declared if 4 of 5 codes match. • 2 = 8 out of 10: a valid FEAC code is declared when 8 of 10 codes match.
-sc <sendCode>	Identifies the current line send code. Enter the keyword (-sc) followed by the <i>sendCode</i> identifier. For example: -sc 2
-clk <clockSource>	Enter 1 to select a loopTiming source, where the receive clock on the back card is redirected to become the transmit clock source. Enter 2 to select a localTiming source, where the clock source from the backplane functions as the transmit clock source. The default is 2 (localTiming).
-chan <channelization>	Enables/disables channelization on the current line. Enter the keyword (-chan) followed by the <i>channelization</i> identifier. For example: -chan 2 The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = Disabled • 2 = Enabled

- Step 5** To verify your configuration changes, enter the **dspln** command.

Configuring E3 Lines

All line types are brought up with a default configuration. When configuring trunks between two Cisco MGX switches, you may be able to accept the defaults for each switch and thus minimize configuration time. When configuring a line to another type of device, ensure that both devices are using the same configuration parameters on the shared line.

The following procedure describes how to configure E3 lines.

- Step 1** Establish a configuration session using a user name with GROUP1 privileges or higher.
- Step 2** If you do not know the line number you want to configure, enter the **dsplns** command to display a list of the lines:
- Step 3** To verify your configuration changes, enter the **dspln** command.

```
M8850_NY.13.MPSM155 [ATM] .a > dspln
```

Remember that you cannot configure a line until you have brought it up as described earlier in the “[Bringing Up Lines](#)” section.

- Step 4** To configure an E3 line, enter the following command:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfln <bay.line> -lt <lineType> -clk <clockSource> -txtrace <TraceString>
```

[Table 2-6](#) lists the parameter descriptions for configuring E3 lines.

Table 2-6 Parameters for Configuring E3 Lines with the cnfln Command

Parameter	Description
<i>bay.line</i>	<p>Replace <i>bay</i> with 1, and Replace <i>line</i> with the number that corresponds to the back card port to which the line is connected.</p> <p>The bay number is always 1.</p> <p>Use the dsplns command to see all line numbers on the current MPSM-T3E3-155.</p>
-lt <LineType>	<p>Specifies the types of E1 line. Enter a number to indicate the line type as follows:</p> <ul style="list-style-type: none"> 17—e3g832frmronly 18—e3g751frmronly

Table 2-6 Parameters for Configuring E3 Lines with the `cnfln` Command (continued)

Parameter	Description
-clk <clockSource>	<p>Enter 1 to select a loopTiming source, where the receive clock on the back card is redirected to become the transmit clock source.</p> <p>Enter 2 to select a localTiming source, where the clock source from the backplane functions as the transmit clock source.</p> <p>The default is 2 (localTiming).</p>
-txtrace <TraceString>	<p>Enter a trace string number that can be a maximum of 15 bytes.</p> <p>This option allows you to transmit and display trail trace bytes. You can test the line by transmitting a group of numbers using cnfln -txtrace and then displaying using the dspln command to see if the numbers are the same. Enter the keyword (-txtrace) followed by the <i>TraceString</i>.</p> <p>For example:</p> <pre>-txtrace 17362</pre> <p>Note In Release 5, the MPSM-T3E3-155 supports only the transmit trace. The receive trace is not supported in Release 5.</p>

Step 5 To verify your configuration changes, enter the **dspln** command.

Configuring SONET/SDH Lines

All line types are brought up with a default configuration. When configuring trunks between two Cisco MGX switches, you may be able to accept the defaults for each switch and thus minimize configuration time. When configuring a line to another type of device, ensure that both devices are using the same configuration parameters on the shared line.

The following procedure describes how to configure SONET/SDH lines.

Step 1 Establish a configuration session using a user name with GROUP1 privileges or higher.

Step 2 If you do not know the line number you want to configure, enter the **dsplns** command to display a list of the lines.

```
M8850_NY.13.MPSM155 [ATM] .a > dsplns
```

Sonet Line	Line State	Line Type	Line Lpbk	Frame Scramble	Medium Line Coding	Medium Line Type	Valid Intvls	Alarm State	APS Enabled	Channe- lized
1.1	Up	sonetSts3c	NoLoop	Enable	NRZ	ShortSMF	2	Clear	Disable	No
1.2	Down	sonetSts3c	NoLoop	Enable	NRZ	Other	0	Clear	Disable	No

Remember that you cannot configure a line until you have brought it up as described in the previous section, “Bringing Up Lines”.

Step 3 To display the configuration for a line, enter the **dspln** command. For example:

```
M8850_NY.13.MPSM155 [ATM] .a > dspln 1.1
```

Line Number	: 1.1		
Admin Status	: Up	Alarm Status	: Clear
Loopback	: NoLoop	APS enabled	: Disable


```

Frame Scrambling      : Enable           Number of ATM ports      : 0
Xmt Clock source     : localTiming       Number of ATM partitions : 0
Line Type            : sonetSts3c        Number of ATM SPVC      : 0
Medium Type (SONET/SDH) : SONET         Number of ATM SPVP      : 0
Medium Time Elapsed  : 823              Number of ATM SVC       : 0
Medium Valid Intervals : 2              Number of ATM Sig VC    : 0
Medium Line Type     : ShortSMF         Number of FR ports      : 0
Channelized          : No                Number of FR Connections : 0
Num of STS-Paths/AUs : 1              Number of IMA Links     : 0
Provisioned Paths/AUs : 0

```

For more information, see the “[Verifying Line Configuration](#)” section later in this chapter.

Step 4 To configure a SONET/SDH line, enter the following command:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfln <bay.line> -slt <LineType> -clk <clockSource>
```

[Table 2-7](#) lists the parameter descriptions for configuring SONET/SDH lines.

Table 2-7 Parameters for Configuring SONET/SDH Lines with the cnfln Command

Parameter	Description
<i>bay.line</i>	Replace <i>bay</i> with 1 , and Replace <i>line</i> with the number that corresponds to the back card port to which the line is connected (in the range from 1 through 2). The bay number is always 1.
-slt <LineType>	Enter -slt 1 for SONET or -slt 2 for SDH.
-clk <clockSource>	Enter 1 to select a loopTiming source, where the receive clock on the back card is redirected to become the transmit clock source. Enter 2 to select a localTiming source, where the clock source from the backplane functions as the transmit clock source. The default is 2 (localTiming).

Step 5 To verify your configuration changes, enter the **dspln** command.

Verifying Line Configuration

To display the configuration of a line, use the following procedure.

Step 1 Establish a CLI management session at any user access level.

Step 2 If you do not know the line number you want to view, display a list of the lines by entering the following command:

```
M8850_NY.13.MPSM155 [ATM] .a > dsplns
```

Step 3 To display the configuration of a single line, enter the following command:

```
M8850_NY.13.MPSM155 [ATM] .a > dspln <bay.line>
```

Replace bay with 1, and line with a number in the range from 1-3 on the MPSM-T3E3-155 or from 1-16 on the MPSM-16-T1E1.



Note The bay number is always 1.

In the following example, the line configuration of a SONET line appears as follows:

```
M8850_NY.13.MPSM155[ATM].a > dspln 1.2
Line Number           : 1.2
Admin Status          : Down           Alarm Status           : Clear
Loopback              : NoLoop        APS enabled            : Disable
Frame Scrambling      : Enable        Number of ATM ports    : 0
Xmt Clock source      : localTiming   Number of ATM partitions : 0
Line Type             : sonetSts3c     Number of ATM SPVC     : 0
Medium Type (SONET/SDH) : SONET      Number of ATM SPVP     : 0
Medium Time Elapsed   : 0           Number of ATM SVC      : 0
Medium Valid Intervals : 0           Number of ATM Sig VC   : 0
Medium Line Type      : Other         Number of FR ports     : 0
Channelized           : No           Number of FR Connections : 0
Num of STS-Paths/AUs : 0           Number of IMA Links    : 0
Provisioned Paths/AUs : 0
```

```
M8850_NY.13.MPSM155[ATM].a >
```

Establishing Redundancy Between Two Lines with APS

The Cisco MGX switch supports two types of line redundancy:

- Intracard redundancy, where the working and protection lines are connected to the same card.
- Intercard redundancy, where the working line is connected to the primary card, and the protection line is connected to the secondary card.

The MPSM-T3E3-155 card supports APS when using the SFP-2-155 or SMB-2-155-EL back cards. APS is not supported on the MPSM-16-T1E1 card.

These topics describe how to add redundancy for these types of APS lines:

- [Adding Intracard APS Lines on the Same Card](#)
- [Adding Intercard APS Lines on Different Cards](#)

Adding Intracard APS Lines on the Same Card

To establish redundancy between two lines on the same card, use the following procedure.

-
- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
 - Step 2** If you have not done so already, bring up the working line as described in the [“Bringing Up Lines”](#) section, which appears earlier in this chapter.
 - Step 3** Enter the **addapsln** command as follows:

```
M8850_NY.13.MPSM155[ATM].a > addapsln <workingIndex> <protectIndex> <archmode>
```

Replace *<workingIndex>* with the location of the working line using the format “slot.bay.line.” For example, to specify the line on card 2, line 2, enter 2.1.2.



Note The bay number is always 1.

Replace *<protectIndex>* with the location of the protection line, using the same format used for the working line.



Note For intracard redundancy, the working index and protection index must specify ports on the same card, so the slot number will always match.

Replace *<archmode>* with the option number that selects the automatic protection switching (APS) architecture mode (or protocol) you want to use. [Table 2-8](#) shows the option numbers and the architecture modes they select, and whether that mode is revertive.

Table 2-8 APS Line Architecture Modes

Option	Description	Revertive
1	Selects 1+1 signaling (transmission on both working and protect lines) for intracard APS.	Yes
2	Selects 1:1 signaling (transmission on either the working line or the protect line) for intracard APS.	Yes
3	Selects G.783, Annex B 1+1 signaling.	No.

In the following example, 1+1 APS redundancy is assigned to two lines on the same card:

```
M8850_NY.13.MPSM155 [ATM] .a > addapsln 1.1.1 1.1.2 1
```

- Step 4** To display a list of all the APS lines on a card, enter the **dsapslns** command on the active card.
- Step 5** To display information on a specific APS line, enter the **dsapsln <slot.bay.line>** command on the active card.
-



Note For information on managing redundant APS lines, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*

Adding Intercard APS Lines on Different Cards

To establish redundancy between two lines on different cards, use the following procedure.



Note For intercard APS to operate properly, an APS connector must be installed between the two cards. For more information in the APS connector and how to install it, refer to the *Cisco MGX 8800/8900 Hardware Installation Guide, Releases 2 - 5.2*.

- Step 1** Establish a configuration session with the appropriate card using a user name with GROUP1_GP privileges or higher.
-

- Step 2** If you have not done so already, add card redundancy as described in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.
- Step 3** If you have not done so already, bring up the working and protection lines as described in “[Bringing Up Lines](#)”.
- Step 4** Verify that an APS connector is installed between the cards that host the working and protection lines by entering the **dspapsbkplane** command.
- Step 5** Enter the **addapsln** command as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > addapsln <workingIndex> <protectIndex> <archmode>
```

Replace *<workingIndex>* with the location of the working line using the format slot.bay.line. For example, to specify the line on card 2, bay 1, line 2, enter 2.1.2.

Replace *<protectIndex>* with the location of the protection line, using the same format used for the working line.



Note For intercard redundancy, the working index and protection index must specify ports on different cards. Also, the working line index must identify a line on the primary card.

Replace *<archmode>* with an option number that defines the type of line redundancy you want to use. [Table 2-9](#) shows the option numbers and the architecture modes (or protocols) they select, and whether that mode is revertive. Note that option 2 (1:1 signaling) is not available for Intercard APS.

Table 2-9 APS Line Architecture Modes

Option	Description	Modes	Revertive
1	Selects 1+1 signaling (transmission on both working and protect lines) for intracard APS.	UNI and Bi-directional	Yes
3	Selects G.783, Annex B 1+1 signaling.	UNI and Bi-directional	No

In the following example, 1+1 APS redundancy is assigned to lines on two different cards:

```
M8850_NY.13.MPSM155 [ATM] .a > addapsln 1.1.2 2.1.2 1
```

- Step 6** Enter the **dspapsbkplane** command on both the standby and active cards to verify that the APS connector is installed properly.



Note This command can show different values for each of the two cards, which indicates the APS connector is seated properly on one card, but not on the other.

- Step 7** To display the a list of all the APS lines on a card, enter the **dspapslns** command.



Note For information on managing redundant APS lines, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*

Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines

These topics and procedures describe channelization on the MPSM-T3E3-155 card:

- [Overview of Channelization on the MPSM-T3E3-155 Card](#)
- [MPSM-T3E3-155 Line Channelization](#)
- [Channelization in SDH Networks versus SONET Networks](#)
- [VTG and TUG-3 Configuration Elements](#)
- [Channelized Line Examples](#)
- [Channelizing a DS3 Line](#)
- [Channelizing a SONET Line](#)
- [Channelizing an SDH Line](#)
- [Bringing Up and Configuring a DS3 \(T3\) Path](#)
- [Bringing Up and Configuring E3 Paths](#)
- [Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)
- [Bringing Up and Configuring TUG-3s](#)

Overview of Channelization on the MPSM-T3E3-155 Card

The MPSM-T3E3-155 supports clear channel services and channelized lines.



Note

The MPSM-T3E3-155 requires a license for channelization. Without a channelization license, you cannot channelize SONET or SDH lines. Enter the **dsplicc** command to view the feature licenses that have been assigned to or are needed by the MPSM-T3E3-155 card.

If a line is not channelized, it is said to be a *clear channel* line, and the full bandwidth of that line is dedicated to a single channel or *path* that carries broadband services.

When a line is channelized, it is logically divided into smaller bandwidth channels called paths. These paths can carry an ATM or Frame Relay payload by themselves, or they can be channelized into smaller bandwidth paths that carry the ATM or Frame Relay payload. The sum of the bandwidth on all paths cannot exceed the line bandwidth. Channelized OC3 lines carry broadband and narrowband services, and channelized DS3 (T3) lines carry narrowband services only.

If you are already familiar with configuring Cisco MGX 8850 switches, you know that most cards provision services (such as ATM or Frame Relay) when assigning ports to a line. When a Synchronous Optical Network (SONET) or Synchronous Digital Hierarchy (SDH) line is channelized, these services are provisioned when assigning a port to a path. Channelized paths are simply a logical layer between the port and the line.

The channelization feature in this release allows the following types of channelization:

- Single Optical Carrier-3 (OC-3) line into any combination of STS-1 or STM-0/AU-3 sub-paths, for a total path size of 155.52 Mbps.
- Single DS3 line into DS1 sub-paths, for a total path size of 736 Mbps.

A SONET synchronous transport signal (STS) is an electrical signal that gets combined with other electrical signals before being transported over an optical line. An STS-3 path has the same bandwidth as an OC-3 line, but it is not labeled with the OC rating if it is merely a path within a higher bandwidth line. For example, you can configure up to 3 STS-1 width paths in an OC-3 line.

A synchronous transport module (STM) signal is the SDH equivalent of the SONET STS, but the numbers are different for each bandwidth. In this guide, the STM term refers to both path widths and optical line rates. The paths within an STM signals are called Administrative Units (AUs).

Channelizing a line is a two-step process:

- Channelize the line into paths
- Bring up the individual paths and configure it as required

Because paths support ATM and Frame Relay on different payloads, you need to specify which payload type will travel over each path, and you may want to configure additional options for each payload and path type. The sections that follow describe how to channelize lines, bring up paths, and configure paths.

When a line is brought up initially, there is one path with a width of **3**. On a SONET line, a path width of **3** indicates that the line contains one clear channel STS-3 path. On an SDH line, a path width of **3** indicates that the line contains one clear channel STM-1/AU-4. To implement channelization, you need to set the path to the width **1**. On SONET lines, a width of **3** results in one path only. On SDH lines, a width **3** path can be channelized into structured Virtual Tributaries (VTs).

MPSM-T3E3-155 Line Channelization

The channelization feature allows you to create a simple or complex combination of paths for each line on your MPSM-T3E3-155 back card. The simplest approach assigns the same bandwidth to each path. For an OC-3/STM-1 line, the simple approach is to configure 1 STS-3/STM-1 path.

A more complex approach creates different path widths within the same SONET/SDH/T3 line. Depending on the type of line being channelized and the channelization scheme used, different types of paths are created.

[Table 2-10](#) lists the SONET, SDH, and T3 path types that are supported in Release 5 of the MPSM-T3E3-155 card.

Table 2-10 Supported Paths

SONET	SDH	T3 (DS3)
STS-1	AU-3	—
STS-3	AU-4	—
DS3 (T3)	DS3 (T3)	—
E3	E3	—
DS1 (T1)	DS1 (T1)	DS1 (T1)
E1	E1	—
VT 1.5	VC-11/TU-11	—
VT 2.0	VC-12/TU-12	—
—	TUG-3	—
DS0 (Frame Relay only)	DS0 (Frame Relay only)	DS0 (Frame Relay only)

**Note**

The Release 5 CLI shows SONET naming conventions in place of their equivalent SDH terms. For example, the display for SDH AU paths shows “STS”, the display for VC/TU paths shows “VT”, and so forth. Refer to [Table 2-13](#) for a comparison of equivalent SONET and SDH terms.

[Table 2-11](#) shows the channel payloads that are supported by each interface type.

Table 2-11 Channlized Interface Mapping

Path/Interface Type	Possible Channel Payloads
STS-1	<ul style="list-style-type: none"> • DS3 • E3 • VT 1.5/DS1 • VT 2.0/E1
AU-4	<ul style="list-style-type: none"> • clear channel DS3 • clear channel E3 • VC- 11/DS1 • VC-12/E1 • VT-structured
AU-3	<ul style="list-style-type: none"> • DS3 • E3 • VT 1.5/DS1 • VT 2.0/E1
DS3	<ul style="list-style-type: none"> • DS1
VT 1.5	<ul style="list-style-type: none"> • DS1
VC-11	<ul style="list-style-type: none"> • DS1
VT 2.0	<ul style="list-style-type: none"> • E1
VC-12	<ul style="list-style-type: none"> • E1

You can assign ATM service to any level path down to DS1, and you can assign Frame Relay service to any level path down to DS0. For example, an STS-1 path can be channelized into two individual DS1 paths, so that one DS1 path carries ATM service, and the other DS1 path carries DS0s with Frame Relay service.

**Note**

ATM service is carried on an STS-3 down to DS1 or $n \times DS1$ (IMA), where n is the number of configured DS1s. See the “[Adding ATM Ports](#)” section [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) to configure ATM service to a DS1 line. Frame Relay is carried on STS-3 down to DS1 or $n \times DS0$, where n is the number of configured DS0s. See the “[Provisioning Frame Relay Ports](#)” section [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) to configure Frame Relay DS1s/DS0s on a line.

Keep the following in mind when configuring paths on a channelized line:

- You can not configure channelization on a line that is already carrying active paths. Before you can configure a previously channelized line, you must bring down all previously configured paths on that line with the **dnpath** command.
- You can not configure a channelized line to be in clear channel mode if it is carrying active paths. Before you can configure a channelized line to be clear channel, you must bring down all previously configured paths on that line with the **dnpath** command.
- The sum of the bandwidths on the provisioned physical interfaces can not exceed the total bandwidth of the physical line (OC3 or DS3).
- A single STS-1 or AU-3 can carry one E3 or one DS3 (T3).
- A single STS-1 or AU-3 can carry either 28 DS1s or 21 E1s. You can not map DS1s (T1s) and E1s into a same STS-1.
- All tributaries within an AU-3 (or TUG-3 within AU-4) must be the same size: either VC-11/TU-11 or VC-12/TU-12.
- A single TUG-3 in an AU-4 can carry 21E1s, 28 T1s, one E3, or one T3.
- A single AU-4 can carry 84 T1s, 63 E1s, 3 T3s, or 3 E3s.
- You can not map channelized DS3 lines or paths into VC3/TU-3s, TUG-3s, or AU-4s.
- ATM service can be selected at any rate down to DS1/E1 for OC-3/STM-1/T3 interfaces.
- Frame Relay service can be selected at any rate down to DS0 for OC-3/STM-1/T3 interfaces.
- A single STS-1 will carry one E3 or one T3.
- A single SDH VC-11/TU-11s carries a single DS1.
- A single SDH TU-12/VC-12 carries a single E1.
- Once a line is configured to be channelized, all the paths that it supports come into existence in non-provisioned (down) mode. You must enter the **uppath** command to bring up the paths you want to configure, and then enter the **cnfpath** command to configure them. The **cnfpath** command parameters are different, depending on the type of path you are configuring. When entering the **cnfpath** command, take care to use only the parameters that are valid for the path type you are configuring. [Table 2-12](#) describes the possible **cnfpath** command parameters for all path types.

Table 2-12 *cnfpath* Command Parameters




Parameter	Description
-<path filter>	<p>Keyword that specifies the type of path you are configuring. That possible path types are as follows:</p> <ul style="list-style-type: none"> • -sts: sts/au path • -ds3: ds3 path • -e3: e3 path • -vt: vt/TU path • -ds1: ds1 path • -e1: e1 path
<i><path_id></i>	<p>Specifies the path you are configuring.</p> <p> Note Enter the dsppaths -all command to see the path numbers for all paths on the current MPSM-T3E3-155 card.</p> <p> Note Only bay 1 is supported for MPSM-T3E3-155 cards.</p>
-payload <i><sts_au_payload_type></i>	<p>Specifies the payload type. Enter a the appropriate number that corresponds with the payload type you want to set, as follows:</p> <ul style="list-style-type: none"> • 2 = unspecified. Use this option to concatenate channelized paths into a single path. • 3 = ds3 • 4 = vt15vc11 • 5 = vt2vc12 • 8 = e3 • 9 = vtStructured. This option only available for SDH lines that configured for a single path (width 3). <p> Note You can assign ds3 payloads only to sts1_stm0 paths.</p>
-width <i><width_spec></i>	<p>Specifies the width of the path. For the MPSM-T3E3-155 card, the options are as follows:</p> <ul style="list-style-type: none"> • 1 = OC3 is channelized into three STS-1/STM-0 (AU-3) paths. • 3 = OC3 contains one STS-3/STM-1 (AU-4) path. This is the default setting. <p>Note This parameter is available only for SONET/SDH lines that are in a down state.</p>

Table 2-12 *cnfpath Command Parameters (continued)*

Parameter	Description
-txtrace <trace-string>	<p>For SONET/SDH and E3 paths, this option allows you to transmit and display trail trace bytes. You can test the line by transmitting a group of numbers using cnfln -txtrace and then displaying the result using the dshpln command to see if the numbers are the same. Enter the keyword (-txtrace) followed by the <i>TraceString</i>.</p> <p>On SDH and E3 lines, the <i>TraceString</i> is a number that can be a maximum of 15 bytes.</p> <p>ON SONET lines, the <i>TraceString</i> is a number that can be a maximum of 62 bytes.</p> <p>For example:</p> <pre>-txtrace 1736297:</pre>
-cb <AIScBitsCheck>	<p>For DS3 paths, this option specifies whether to ignore or check the AIS C-bit.</p> <ul style="list-style-type: none"> • 1-Chk C-bit • 2-Ignore C-bit
-oof <OOF Criteria>	<p>For DS3 paths, this option specifies the threshold for triggering an out-of-frame condition. Enter the keyword (-oof) followed by the <i>OOFCriteria</i> identifier. For example:</p> <pre>-oof 1</pre> <p>The possible values for this parameter are:</p> <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error.

Table 2-12 *cnfpath Command Parameters (continued)*

Parameter	Description
-lt <Line Type>	<p>For DS3, E3, DS1, and E1 paths, this option specifies the line type you are configuring. Enter the keyword (-lt) followed by the <i>LineType</i> identifier. For example:</p> <pre>-lt 2</pre> <p>The possible values for this parameter are as follows.</p> <p>DS3:</p> <ul style="list-style-type: none"> • 1 = ds3cbitadm • 2 = ds3cbitplcp • 9 = dsx3M23 • 11 = dsx3CbitParity <p>E3:</p> <ul style="list-style-type: none"> • 17 = e3g832frmronly • 18 = e3g751frmronly <p>DS1:</p> <ul style="list-style-type: none"> • 2 = dsx1ESF • 3 = dsx1SF <p>E1:</p> <ul style="list-style-type: none"> • 4 = dsx1E1 • 5 = dsx1E1CRC • 6 = dsx1E1MF • 7 = dsx1E1CRCMF
-clk <Clock Source>	<p>For DS3, E3, DS1, and E1 paths, this option determines whether the transmit clock comes from the backplane (local timing) or the receive clock on the line (looped timing). Enter the keyword (-clk) followed by the <i>clockSource</i> identifier. For example:</p> <pre>-clk 2</pre> <p>The possible values for this parameter are:</p> <ul style="list-style-type: none"> • 1 = loopTiming source—The receive clock on the back card is redirected to become the transmit clock source. • 2 = localTiming source (default)—The clock source from the backplane functions as the transmit clock source.
-feac <RcvFEAC>	<p>For DS3 and E3 paths, this option specifies the threshold for triggering an FEAC condition. Enter the keyword (-feac) followed by the <i>RcvFEAC</i> identifier. For example: -feac 1</p> <p>The possible values for this parameter are:</p> <ul style="list-style-type: none"> • 1 = 4 out of 5 • 2 = 8 out of 10 • 3 = disable

Table 2-12 *cnfpath Command Parameters (continued)*

Parameter	Description
-lpb <Loopback>	For DS3, E3, DS1, and E1 paths, this option specifies the loopback type for the line type. The entry for no loopback (1) removes any existing loopback. <ul style="list-style-type: none"> • 1 = No loopback • 2 = Local loopback • 3 = Remote loopback
-chan <Channelization>	For DS3 paths, this option enables or disables channelization on the current line. Enter the keyword (-chan) followed by the <i>channelization</i> identifier. For example: -chan 2 The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = Disabled • 2 = Enabled

Channelization in SDH Networks versus SONET Networks

SONET networks and SDH networks use different terminology to describe the same elements in a channelized line. Table 2-13 lists the SONET terms and their equivalent SDH terms.

Table 2-13 *SONET Terminology versus SDH Terminology*

SONET term	Equivalent SDH Term
STS-3	STM-1/AU-4
STS-1	STM-0/AU-3
VT	Tributary Unit (TU) or Virtual Containers (VC).
VTG	TUG
VT 1.5	TU-11
VT 2.0	TU-12

SONET path and interface numbering is different from SDH path and interface numbering. Table 2-14 defines the interface and path numbering for SONET and T3 lines, and Table 2-15 defines the interface and path numbering for SDH lines.

Table 2-14 *Interface Numbering in SONET Networks*

SONET Path Type	Path Number
STS paths	<i>bay.line.sts</i>
DS3(T3)/E3 paths	<i>bay.line.ds3</i>
VT paths	<i>bay.line.sts:vtg.vt</i>
DS1(T1)/E1 paths	<i>bay.line.sts:ds1</i>

Table 2-15 Interface Numbering in SDH Networks

SDH Path Type	Path Number
AU paths	<i>bay.line.AU</i>
DS3(T3)/E3 paths	<i>bay.line.ds3</i>
TU paths	<i>bay.line.au:tug3.tu</i>
DS1(T1)/E1 paths	<i>bay.line.au:tug3.ds1</i>

**Note**

In the Release 5 CLI display, the term “DS3” is used for both T3 and E3 lines, and the term “DS1” is used for both T1 and E1 lines.

**Note**

The *bay* is always 1.

**Tip**

Enter the **dsppaths -all** command to see the path identifies for all paths on the current card.

VTG and TUG-3 Configuration Elements

When OC3/STM-1 lines are channelized to carry tributaries, the tributaries are grouped together in a logical entity called a tributary group. In SONET networks, the tributary groups are called virtual tributary groups (VTGs). In SDH networks, the tributary groups are called Tributary Unit Groups (TUGs). Each individual VTG or TUG is a manageable path with a defined rate and format.

**Note**

TUGs and VTGs are not interfaces, and cannot be monitored for faults and performance.

In SONET networks, a single STS-1 line carries 7 separate VTGs. Each individual VTG can be configured independently from the other VTGs in that same STS-1, and can carry VTs of any size.

In SDH networks, a single STM-1 (AU-4) line carries 3 separate TUG-3s. Each individual TUG can be configured independently from the other TUGs in that same STM-0, and can carry TUs of any size.

[Table 2-16](#) summarizes the elements tributary group configuration.

Table 2-16 Tributary Group Configuration Elements

Interface Configured	Payload Type	Tributary Groups Created	Interfaces Created
STS-1/AU-3	DS3/E3	-	1 DS3/E3 created
STS-1/AU-3	VT 1.5	7 VTGs created	28 VT 1.5/TU-11 & 28 DS1 created
STS-1/AU-3	VT 2.0	7 VTGs created	21 VT 2.0/TU-12 & 21 E1 created
AU-4	DS3/E3	3 TUG-3s created	3 TU-3 and 3 DS3/E3 created
AU-4	VC-11/TU-11	3 TUG-3s created	84 TU-11 & 84 DS1 created

Table 2-16 Tributary Group Configuration Elements (continued)

Interface Configured	Payload Type	Tributary Groups Created	Interfaces Created
AU-4	VC-12/TU-12	3 TUG-3s created	63 TU-12 & 63 E1 created
AU-4	VT Structured	3 TUG-3s created	-
VTG	VT 1.5 or VC-11/TU-11	—	4 VT 1.5s and 4 DS1s are created (for SONET) or 4 VC-11//TU-11s and 4 DS1s are created (for SDH)
VTG	VT 2.0 or VC-12/TU-12	—	3 VT 2.0 and 3 E1s are created (for SONET) or 3 VC-12/TU-12s and 3 E1 are created (for SDH)
TUG-3	TU-11	—	28 VC-11/TU-11 & 28 DS1 are created (SDH only)
TUG-3	TU-12	—	21 VC-12/TU-12 & 21 E1s are created (SDH only)

**Note**

Configuration of a tributary group can be changed as long as the interfaces mapped into the tributary group are not configured.

Channelized Line Examples

The sections that follow provide examples of channelized DS3, SONET, and SDH lines.

**Note**

There are several options for channelizing lines, depending on your network needs, as long as the total path size remains within the physical lines total bandwidth limit. The purposes of the examples that follow is to provide a basic idea of how channelization is configured for the different lines.

Example of a Channelized DS3 line

Figure 2-1 shows one possible way to channelize a DS3 line down to DS1 paths. In this example, the DS3 is mapped into 3 AU-3 (STM-0) paths. The paths are mapped as follows:

- The DS3 line is channelized into twenty-eight individual DS1 paths.

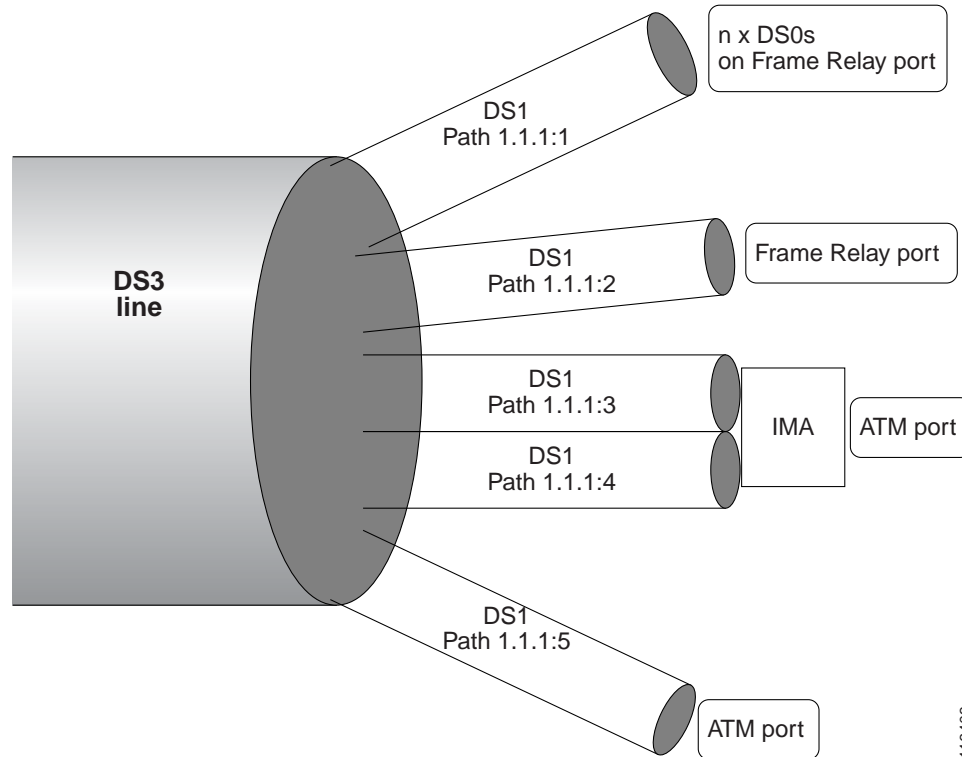
**Note**

The purposes of this example is to provide a basic idea of how channelization is configured on a DS3 line. Therefore, Figure 2-1 shows the configuration for only five of the twenty-eight DS1 paths. Note that when you enable channelization on a DS3 line, twenty-eight DS1 paths are created and put in a *Down* state.

- DS1 path 1.1.1:1 is channelized into DS0s on a Frame Relay port.

- DS1 path 1.1.1:2 ends at a Frame Relay port.
- DS1 paths 1.1.1:3 and 1.1.4 are grouped into a single IMA group on an ATM port.
- DS1 path 1.1.1:5 ends on a Frame Relay port.

Figure 2-1 Example of a Channelized DS3 line.



Example of a Channelized OC3 SONET line

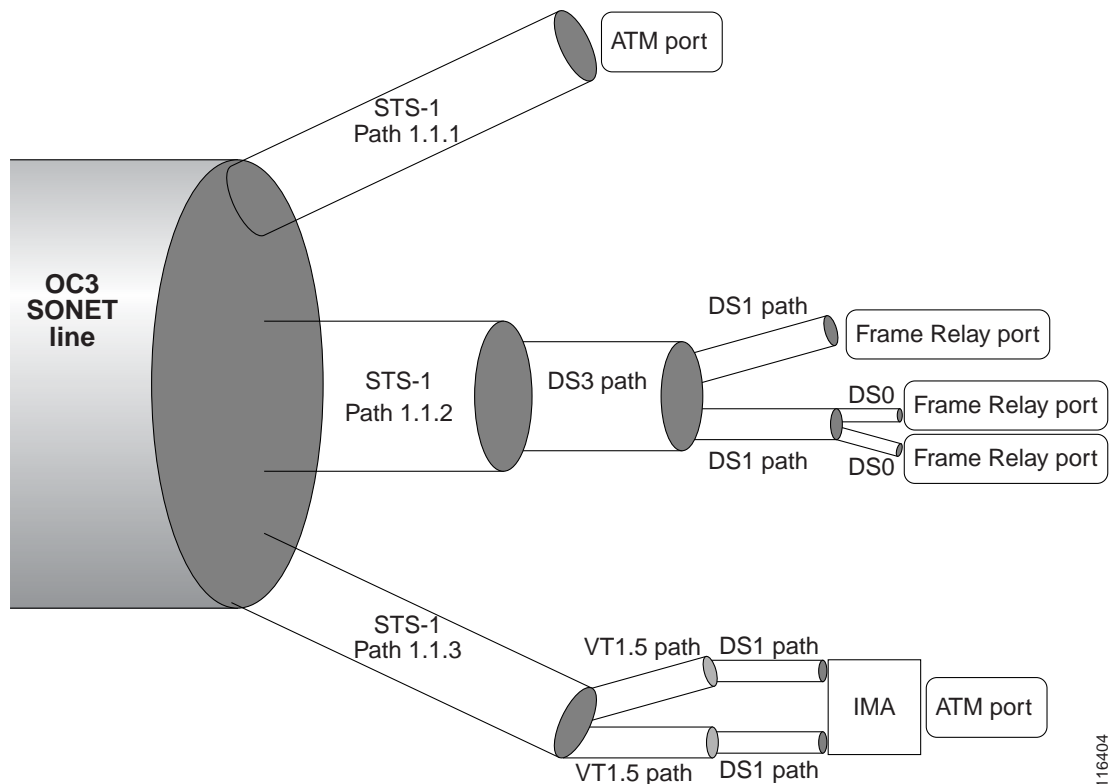
Figure 2-2 shows one possible way to channelize a OC3 line down to DS0. In this example, the OC3 is channelized into 3 STS-1 paths. The paths are mapped as follows:

- The OC3 SONET line is channelized into three individual STS-1 paths.
- STS-1 path 1.1.1 provides direct ATM service over a single path.
- STS-1 path 1.1.2 provides Frame Relay service to three ports. In this case, the STS-1 path is channelized into a single DS3 path, which is then channelized into two separate DS1 paths. One DS1 path ends connects directly to a Frame Relay port, while the other DS1 path is channelized into two separate DS0s that connect to Frame Relay ports.
- STS-1 path 1.1.3 provides ATM IMA service to an ATM Port. STS-1 path 1.1.3 is channelized into twenty-eight VT 1.5 paths. Each VT 1.5 path carries a DS1 path. The DS1 paths are bundled into an IMA group that ends at an ATM port.



Note The purposes of this example is to provide a basic idea of how channelization is configured on a SONET line. Therefore, Figure 2-2 shows the configuration for only two of the twenty-eight DS1 and VT 1.5 paths in each instance.

Figure 2-2 Example of a Channelized SONET.



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Example of a Channelized OC3 SDH line

Figure 2-3 shows one possible way to channelize a OC3 line down to DS1 paths. In this example, the OC3 is channelized into 3 AU-3 (STM-0) paths. The paths are mapped as follows:

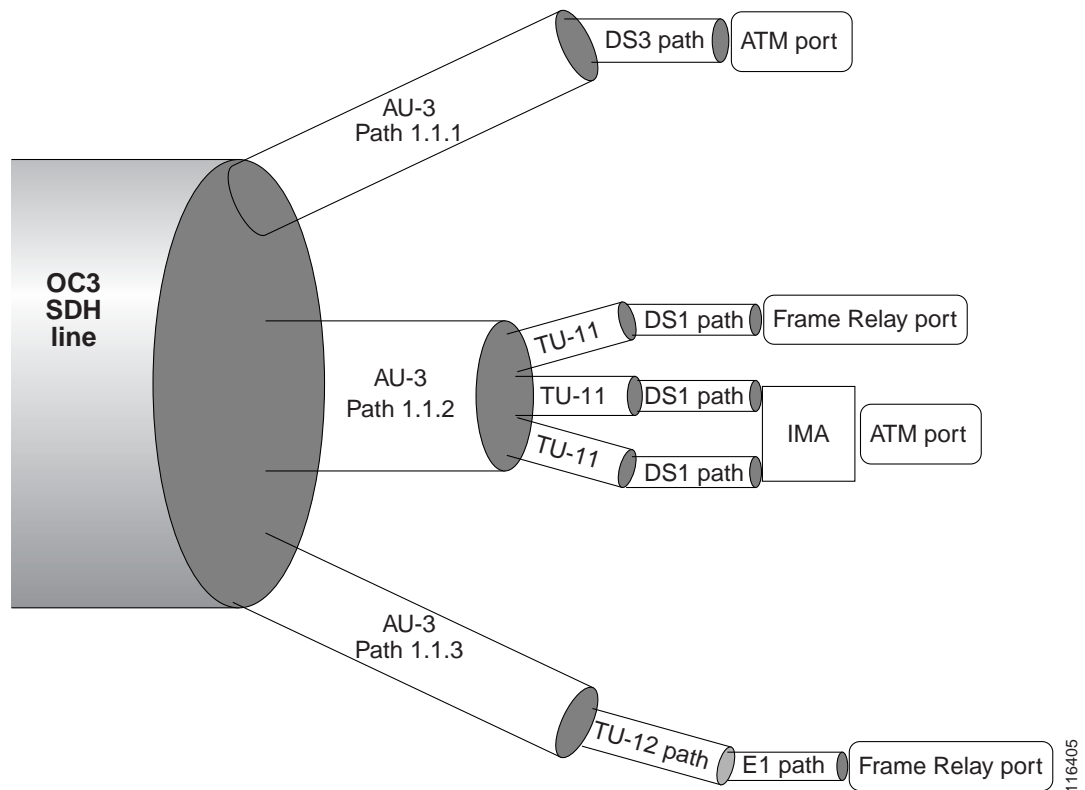
- The OC3 SONET line is channelized into three individual AU-3 (STM-0) paths.
- AU-3 (STM-0) path 1.1.1 carries a DS3 path that ends at an ATM port.
- AU-3 (STM-0) path 1.1.2 is channelized into twenty-eight individual TU-11s. Each TU-11 carries a single DS1 path. Two of DS1 paths are combined into an IMA group that ends at an ATM port. The other TU-11 ends at a Frame Relay port.
- AU-3 (STM-0) path 1.1.3 is channelized into a single TU-12 path, which is further channelized into 21 E1 paths that end at a Frame Relay port.



Note

The purposes of this example is to provide a basic idea of how channelization is configured on an SDH line. Therefore, Figure 2-3 shows the configuration for only three of the twenty-eight TU-11s and DS1s on the AU-3 path 1.1.2, and path 1.1.3 shows only one E1 path.

Figure 2-3 Example of a Channelized SDH OC3 line



Channelizing a DS3 Line

When a DS3 line is in clear channel mode, it carries a single DS3 path. You can channelize the DS3 line so that it contains three separate DS1 paths.



Note

Use this procedure to channelize and configure a physical DS3 line on a BNC-3-T3 back card only. If you want to further channelize a SONET or SDH DS3 path, follow the procedures in the [“Bringing Up and Configuring a DS3 \(T3\) Path”](#) section later in this chapter.

Use the following procedure to channelize a DS3 line into twenty-eight DS1 paths.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the `cc` command to change to the card you want to configure.
- Step 3** If you have not done so already, bring up the line to be configured as described in the [“Bringing Up Lines”](#) section, which appears earlier in this chapter.

- Step 4** Enter the **dsplns** command to ensure that the line you want to channelize is up, and to obtain the line number, as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM] .a > dsplns
Line Line      Line      Line      Length  OOF      AIS      Valid  Alarm
Num  State     Type      Lpbk      (meters) Criteria cBitsCheck Intvls  State
-----
1.1   Up    dsx3CbitParity  NoLoop      0    3Of16Bits  Check      96    Clear
1.2   Up    dsx3CbitParity  NoLoop      0    3Of16Bits  Check      25    Clear
1.3  Down  dsx3CbitParity  NoLoop      0    3Of16Bits  Check       0    Clear
```

- Step 5** Enter the **cnfln <bay.line> -chan 2** command to configure a valid line type for channelization. Replace *bay.line* with the DS3 line number in the format *1.n*, where *n* is the number of the line you want to channelize. The **-chan 2** option channelizes the line into twenty-eight individual DS1 sub-paths.



Note The bay number is always 1.



Note **9** and **11** are the only valid line types for channelized DS3 lines.

In the following example, the user configures line 1.2 with the line type *dsx3CbitParity*.

```
M8830_CH.12.MPSM155 [ATM] .a > cnfln 1.2 -lt 11 -chan 2
```

- Step 6** Enter the **dsppaths -all** or **dsppaths -ds1** command to ensure that the DS3 line has been channelized into twenty-eight individual DS1 sub-paths. The DS1 lines will have path numbers in the following format: *bay.line.ds1*, where *bay.line* is the number of the DS3 line you channelized in Step 5, and *ds1* identifies the individual DS1 path.

In the following example, the user enters the **dsppaths -all** command to display all paths on the current card.

```
M8830_CH.12.MPSM155 [ATM] .a > dsppaths -all
```

Path	Path Type	Admin Status	DS1 Type	Path Lpbk	Alarm Status	Oper State	Path Service
1.2:1	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:2	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:3	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:4	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:5	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:6	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:7	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:8	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:9	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:10	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:11	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:12	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:13	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:14	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:15	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:16	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:17	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:18	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid

Type <CR> to continue, Q<CR> to stop:

Path	Path Type	Admin Status	DS1 Type	Path Lpbk	Alarm Status	Oper State	Path Service
------	-----------	--------------	----------	-----------	--------------	------------	--------------

1.2:19	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:20	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:21	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:22	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:23	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:24	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:25	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:26	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:27	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid
1.2:28	ds1	Down	dsx1ESF	NoLoop	Unknown	Down	invalid

- Step 7** Bring up and configure the individual DS1 paths as described in the “[Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)” section later in this chapter.

Channelizing a SONET Line

When a SONET line is in clear channel mode, it carries a single STS-3 path. You can channelize the SONET line so that it contains three separate STS-1 paths.

Use the following procedure to channelize a SONET line into three STS-1 paths.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the card you want to configure.
- Step 3** If you have not done so already, bring up the line to be configured as described in the “[Bringing Up Lines](#)” section, which appears earlier in this chapter.
- Step 4** Enter the **dsppaths -sts** command to see the path ID numbers for all STS-1 paths on the current card, and obtain the path ID for the path you want to channelize.
- Step 5** Enter the **cnfpath -sts <path_id> -width 1** command to set the path width. Although this command has many options, you must channelize the line before you bring up and configure individual paths. The command form that channelizes the line is as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath -sts <path_id> -width 1
```

Replace the *path_id* variable with the complete path number in the format *bay.line.sts*, as shown in [Table 2-12](#).



Note The MPSM-T3E3-155 card supports two widths: STS-1/STM-0 and STS-3/STM-1. To channelize the line, you must select STS-1/STM-0. For more information about the **-width <width_spec>** parameter, see [Table 2-12](#).

The following example channelizes line 1.1.1 into three individual STS-1 paths.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath 1.1.1 -width 1
```

Step 6 Enter the **dsppaths -sts** command to verify that the line has been channelized into three separate STS paths, as shown in the following example.

```
M8850_NY.13.MPSM155 [ATM] .a > dsppaths -sts
```

Path	Path Type	Admin Status	Path Payload	Path Width	Alarm Status	Oper State
1.1.1	sts	Down	unequipped	1	Unknown	Down
1.1.2	sts	Down	unequipped	1	Unknown	Down
1.1.3	sts	Down	unequipped	1	Unknown	Down

```
M8850_NY.13.MPSM155 [ATM] .a >
```

**Note**

The software supports only the path widths described in [Table 2-12](#). When you create a path by dividing a larger path or combining smaller paths, the software may automatically create additional paths to assure that all the available bandwidth is assigned to one of the available path sizes.

**Note**

To change the path width on a line that has already been configured to support a path width of 1, enter the **dnpath -sts <path_id>** command to bring down the path, and then enter the **cnfpath -sts <path_id> -width 3**. Note that all sub-paths must be in a down state before you can bring down a parent path.

Bringing Up and Configuring SONET Paths

After you split a SONET line into multiple paths, you are ready to bring up the individual paths. You must bring up the individual path or paths before you can assign a payload to that path and proceed with further channelization. Once you assign a payload to a path, the path is channelized into separate paths.

The following procedures describe how to bring up path and configure the path for one of the following payload types:

- DS3—If the users chooses the payload to be ds3, then a single DS3 path is created and put in a DOWN state.
- E3—If the users chooses the payload to be e3, then a single E3 path is created and put in a DOWN state.
- VT 1.5—If the users chooses the payload to be VT 1.5, then 28 VT 1.5 paths and 28 DS1 paths are created and put in a DOWN state.
- VT 2.0—If the users chooses the payload to be VT 2.0, then 21 VT 2.0 paths and 21 E1 paths are created and put in a DOWN state.
- Structured VT (SDH and width 3)—This option is not supported on SONET lines.

Use the following procedure to bring up and configure a SONET path.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the MPSM-T3E3-155 card you want to configure.
- Step 3** If you have not done so already, channelize the line as described in the previous section, “[Channelizing a SONET Line](#)”

- Step 4** Enter the **dsppaths -sts** command to see the path ID numbers for all STS-1 paths on the current card, and obtain the path ID for the path you want to channelize.
- Step 5** Bring up the path with the **uppath -sts <path num>** command, as shown in the following example.
- ```
M8850_NY.13.MPSM155 [ATM] .a > uppath -sts 1.1.1
```
- Step 6** Enter the **cnfpath -sts <path\_id> -payload <sts\_au\_payload\_type>** command to set the payload type for the path. The possible payload types for the paths you can create are described in [Table 2-12](#). Be sure to set the payload to a type that is appropriate to the path type you are channelizing.

**Note**

[Table 2-12](#) describes the *path\_id* variable, which must be entered in the format *bay.line.sts*. The *-payload* option specifies the payload type as DS3, E3, VT 1.5, VT 2.0, or *unspecified*.

The following example shows how to configure a path for a DS3 payload:

```
M8830_CH.12.MPSM155 [ATM] .a > cnfpath -sts 1.4.47 -payload 3
```

- Step 7** To display the status of a path you have brought up, enter the **dsppath** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > dsppath 1.4.47
Path Number : 1.4.47 Path Type : sts
Payload : ds3 Width : 1
Admin Status : Up Alarm Status : Clear
Path Operational State : lowLayerDn
Number of ports : 0 Number of partitions: 0
Number of SPVC : 0 Number of SPVP : 0
Number of SVC : 0
Xmt.Trace :
```

When the path is up, the Admin Status row displays *Up*. The Payload row displays the payload type.

- Step 8** Bring up and configure the paths you created in Step 5. Refer to the section that is appropriate to the payload you configured, as follows:
- If you configured a DS3 payload, see the [“Channelizing a DS3 Line”](#) section later in this chapter for instructions on bringing up and configuring DS3 paths.
  - If you configured an E3 payload, see the [“Bringing Up and Configuring E3 Paths”](#) section later in this chapter for instructions on bringing up and configuring E3 paths.
  - If you configured a VT 1.5 or VT 2.0 payload, see the [“Bringing Up and Configuring TUG-3s”](#) section later in this chapter for instructions on bringing up and configuring VT paths. To bring up and configure the 28 DS1s that were also created when you set the payload as VT 1.5, see the [“Bringing Up and Configuring DS1\(T1\) and E1 Paths”](#) section later in this chapter.
  - If you configured a VT 2.0 payload, see the [“Bringing Up and Configuring TUG-3s”](#) section later in this chapter for instructions on bringing up and configuring VT paths. To configure the 21 DS1s that were also created when you set the payload as VT 2.0, see the [“Bringing Up and Configuring DS1\(T1\) and E1 Paths”](#) section later in this chapter.

## Channelizing an SDH Line

When an SDH line is in clear channel mode, it carries a single AU-4 path. You can channelize the AU-4 path into three separate AU-3 paths.



### Note

STM/AU paths on SDH lines are equivalent to STS paths on SONET lines. The Release 5 CLI shows SONET naming conventions in the place of their equivalent SDH terms. Note that in the channelization CLI, the STM/AU paths are called “STS” paths.

The following procedure describes how to channelize an SDH line into three separate STM-0/AU-3 paths.

- Step 1** Establish a configuration session using a user name with GROUP1\_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the MPSM-T3E3-155 card you want to configure.
- Step 3** If you have not done so already, bring up the line to be configured as described in the “[Bringing Up Lines](#)” section, which appears earlier in this chapter. Once a line is brought up, a single AU-4 path is created and put in a down state.
- Step 4** Enter the **dsppaths -all** command to ensure that an AU path has been created, and to obtain the *path\_id* for the path.

```
M8850_NY.13.MPSM155 [ATM] .a > dsppaths -all
```

| Path  | Path Type      | Admin Status | Path Payload  | Path Width | Alarm Status | Oper State |
|-------|----------------|--------------|---------------|------------|--------------|------------|
| 1.1.0 | sts            | Down         | unequipped    | 3          | Unknown      | Down       |
|       | Shelf Database | table empty. | SonetVTsTable |            |              |            |
|       | Shelf Database | table empty. | Ds3PathsTable |            |              |            |
|       | Shelf Database | table empty. | Ds1PathsTable |            |              |            |

If want to channelize the AU-4 path into three smaller AU-3 paths, proceed to Step 5. If you want to channelize the AU-4 path into clear channel DS3 or clear channel E3 paths, skip the rest of the steps in this section and follow the procedure in the “[Bringing Up and Configuring SDH Paths](#)” section that follows.

- Step 5** Enter the **cnfpath -sts <path\_id> -width 1** command to set the path width. Although this command has many options, you must channelize the line before you bring up and configure individual paths. The command form that channelizes the line is as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath -sts <path_id> -width 1
```

Replace the *path\_id* variable with the complete path number in the format *bay.line.sts*, as shown in [Table 2-12](#). The correct path number for unchannelized SDH line 1 on an MPSM-T3E3-155 card is 1.1.0.

The MPSM-T3E3-155 card supports two path widths:

- STS-3/STM-1 (otherwise known as AU-4 in SDH terminology) uses the full bandwidth of the line in a single AU-4 path (**-width 3**). This is the default path width.
- STS-1/STM-0 divides the line into three separate AU-3 paths (**-width 1**).

You must enter **-width 1** (STS-1/STM-0) to channelize an SDH path into three separate AU-3 paths. For more information about the *width\_spec* parameter, see [Table 2-12](#).

When you channelize a clear channel line, the **cnfpath** command channelizes the entire line into paths equal to the path width you specify.

The following example channelizes line 1.1.1 into 3 AU-3 paths.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath -sts 1.1.0 -width 1
```

**Step 6** Enter the **dsppaths -sts** command to verify that the line has been channelized into three separate SDH paths, as shown in the following example.

```
M8850_NY.13.MPSM155 [ATM] .a > dsppaths -sts
```

| Path  | Path Type | Admin Status | Path Payload | Path Width | Alarm Status | Oper State |
|-------|-----------|--------------|--------------|------------|--------------|------------|
| 1.1.1 | sts       | Down         | unequipped   | 1          | Unknown      | Down       |
| 1.1.2 | sts       | Down         | unequipped   | 1          | Unknown      | Down       |
| 1.1.3 | sts       | Down         | unequipped   | 1          | Unknown      | Down       |



**Note**

The software supports only the path widths described in [Table 2-12](#). When you create a path by dividing a larger path or combining smaller paths, the software may automatically create additional paths to assure that all the available bandwidth is assigned to one of the available path sizes.



**Note**

To change the path width on a line that has already been configured to support a path width of 1, enter the **dnpath -sts <path\_id>** command to bring down the path, and then enter the **cnfpath -sts <path\_id> -width 3**. Note that all sub-paths must be in a down state before you can bring down a parent path.

## Bringing Up and Configuring SDH Paths

After you split an SDH line into multiple paths, you are ready to bring up the individual paths. You must bring up the individual path or paths before you can assign a payload to that path and proceed with further channelization. Once you assign a payload to a path, the path is channelized into separate paths SDH STM-0/AU-3 paths support following payload types:

- DS3—If the users chooses the payload to be ds3, then a single DS3 path is created and put in a DOWN state.
- E3—If the users chooses the payload to be e3, then a single E3 path is created and put in a DOWN state.
- TU-11 (VT 1.5)—If the users chooses the payload to be VT 1.5, then 28 VT 1.5 paths and 28 DS1 paths are created and put in a DOWN state.
- TU-12 (VT 2.0)—If the users chooses the payload to be VT 2.0, then 21 VT 2.0 paths and 21 E1 paths are created and put in a DOWN state.

SDH STM-1/AU-4 paths support following payload types:

- DS3—If the users chooses the payload to be ds3, then a three DS3 paths are created and put in a DOWN state.
- E3—If the users chooses the payload to be e3, then three E3 paths are created and put in a DOWN state.
- TU-11 (VT 1.5)—If the users chooses the payload to be VT 1.5, then 84 TU-11s paths and 84 DS1 paths are created and put in a DOWN state.

- TU-12 (VT 2.0)—If the users chooses the payload to be VT 2.0, then 63 TU-12s paths and 63 E1 paths are created and put in a DOWN state.
- Structured VT— If the users chooses the payload to be structured VT, then three TUG-3s are created and put in a down state. This payload is available only for SDH AU-4 Paths.

Use the following procedure to bring up and configure a SDH path.

- 
- Step 1** Establish a configuration session using a user name with GROUP1\_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the MPSM-T3E3-155 card you want to configure.
- Step 3** If you have not done so already, channelize the line as described in the previous section, “[Channelizing an SDH Line](#)”
- Step 4** Enter the **dsppaths -sts** command to see the path ID numbers for all STS-1/STM-0 paths on the current card, and obtain the path ID for the path you want to channelize.
- Step 5** Bring up the path with the **uppath -sts <path num>** command as shown in the following example.
- ```
M8850_NY.13.MPSM155 [ATM] .a > uppath -sts 1.1.1
```
- Step 6** Enter the **cnfpath -sts <path_id> -payload <sts_au_payload_type>** command to set the payload type for the path. The possible payload types for the paths you can create are described in [Table 2-12](#). Be sure to set the payload to a type that is appropriate to the path type you are channelizing.



Note

[Table 2-12](#) describes the *path_id* variable, which must be entered in the format *bay.line.sts*. The *-payload* option specifies the payload type as DS3, E3, VT 1.5, VT 2.0, VT structured, or *unspecified*.

The following example shows how to configure a path for a DS3 payload:

```
M8830_CH.12.MPSM155 [ATM] .a > cnfpath -sts 1.4.47 -payload 3
```

- Step 7** To display the status of a path you have brought up, enter the **dsppath** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > dsppath 1.4.47
Path Number          : 1.4.47          Path Type           : sts
Payload              : ds3             Width              : 1
Admin Status         : Up              Alarm Status        : Clear
Path Operational State : lowLayerDn
Number of ports      : 0              Number of partitions: 0
Number of SPVC       : 0              Number of SPVP      : 0
Number of SVC        : 0
Xmt.Trace            :
```

When the path is up, the Admin Status row displays *Up*. The Payload row displays the payload type, which is either DS3, E3, VT 1.5, VT 2.0, VT structured or *unspecified*.

- Step 8** Bring up and configure the paths you created in Step 5. Refer to the section that is appropriate to the payload you configured, as follows:
- If you configured a DS3 payload, see the “[Channelizing a DS3 Line](#)” section later in this chapter for instructions on bringing up and configuring DS3 paths.
 - If you configured an E3 payload, see the “[Bringing Up and Configuring E3 Paths](#)” section later in this chapter for instructions on bringing up and configuring E3 paths.
 - If you configured a VC-12/TU-12 (VT 1.5) payload, see the “[Bringing Up and Configuring TUG-3s](#)” section later in this chapter for instructions on bringing up and configuring VT paths. To bring up and configure the 28 DS1s that were also created when you set the payload as VT 1.5, see the “[Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)” section later in this chapter.

- If you configured a VC-12/TU-12 (VT 2.0) payload, see the “[Bringing Up and Configuring TUG-3s](#)” section later in this chapter for instructions on bringing up and configuring VT paths. To configure the 21 DS1s that were also created when you set the payload as VT 2.0, see the “[Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)” section later in this chapter.

Bringing Up and Configuring a DS3 (T3) Path

The following procedure describes how to bring up, configure, and channelize a DS3 path into twenty-eight individual DS1 paths.



Note

Use this procedure to configure a DS3 path within a channelized SONET or SDH OC3 line only. To channelize and configure a physical DS3 line on a BNC-3-T3 back card, following the procedures in the “[Channelizing a DS3 Line](#)” section earlier in this chapter.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the `cc` command to change to the MPSM-T3E3-155 card you want to configure.
- Step 3** If you have not done so already, bring up the line to be configured as described in the “[Bringing Up Lines](#)” section, which appears earlier in this chapter.
- Step 4** Enter the `dsppaths -ds3` command to see the path ID numbers for all DS3 paths on the current card, and obtain the path ID for the path you want to bring up and channelize.
- Step 5** If you are configuring a DS3 path on a channelized SONET or SDH line, bring up the ds3 path with the `uppath` command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > uppath -ds3 <path_num>
```

If you are configuring a physical DS3 (T3) line that is attached to a BNC-3-T3 back card, you do not need to bring the DS3 path up, and you can skip this step and move on to Step 4.

- Step 6** Enter the `cnfpath -ds3 <path_id> [optional parameters] -chan 2` command as follows to channelize the DS3 line into 28 DS1 lines.

```
cnfpath -ds3 <path_id> [-cb <AIScBitsCheck>] [-oof <OOF Criteria>] [-lt <Line Type>] [-clk <Clock Source>] [-feac <RcvFEAC>] [-lpb <Loopback>] -chan 2
```



Note

You must include the optional `-chan 2` parameter with the `cnfpath` command if you want to channelize the DS3 line.



Note

Enter the `dsppaths -ds3` command to see the path numbers for all T3 (DS3) paths on the current card.

In the example that follows, the user enables channelization on the DS3 line 1.1.1:

```
M8830_CH.12.MPSM155 [ATM] .a > cnfpath -ds3 1.1.1 -chan 2
```

- Step 7** To display the status of a path you have brought up, enter the `dsppath` command.

- Step 8** Bring up and configure the individual DS1 paths, as described in the “[Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)” section, later in this chapter.

Bringing Up and Configuring E3 Paths

You must bring up an E3 path before you can provision services on that path.



Note You cannot channelize E3 paths.

The following procedure describes how to bring up a path and configure an E3 path.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the MPSM-T3E3-155 card you want to configure.
- Step 3** If you have not done so already, channelize the line as required. For more information, see the “[MPSM-T3E3-155 Line Channelization](#)” section, which appears earlier in this chapter.
- Step 4** Enter the **dsppaths -e3** command to see the path ID numbers for all E3 paths on the current card, and obtain the path ID for the path you want to bring up and channelize.



Note In Release 5 of the MPSM-T3E3-155 card, the **dsppaths/dsppath** display shows E3 paths as *DS3* paths.

- Step 5** Bring up the E3 path with the **uppath** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > uppath -e3 <path_num>
```

- Step 6** Enter the **cnfpath -e3** command as follows to configure the E3 path parameters.

```
cnfpath -e3 <path_id> [-lt <Line Type>] [-clk <Clock Source>] [-lpb <Loopback>] [-txtrace <traceString>]
```

The **cnfpath** command parameters are described in [Table 2-12](#).



Note Enter the **dsppaths -e3** command to see the path numbers for all E3 paths on the current card. Note that, in the Release 5 CLI display, the term “DS3” refers to both E3 and T3 (DS3) lines.

In the following example, the user configures the E3 path 1.1.2 so that it has the line type *e3g832frmronly*, a local clock source, and no loopback.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath -e3 1.1.2 -lt 17 -clk 2 -lpb 1
```

- Step 7** To display the status of a path you have brought up, enter the **dsppath -ds3 <path_id>** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > dsppath -e3 1.4.4
```

Bringing Up and Configuring DS1(T1) and E1 Paths

You must bring up a DS1/E1 path before you can provision services on that path. The following procedure describes how to bring up a path and configure channelized DS1/E1 paths.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the card you want to configure.
- Step 3** If you have not done so already, channelize the line as required. For more information, see the “[MPSM-T3E3-155 Line Channelization](#)” section, which appears earlier in this chapter.
- Step 4** Enter the **dsppaths -ds1|e1** command to see the path ID numbers for all T1 (DS1) and E1 paths on the current card, and obtain the path ID for the path you want to bring up and channelize.



Note In Release 5 of the MPSM-T3E3-155 card, the **dsppaths/dsppath** display shows E1 paths as *DS1* paths.

- Step 5** Bring up the DS1 or E1 path with the **uppath** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > uppath [-ds1|e1] <path_num>
```

- Step 6** Enter the **cnfpath -ds1|e1** command as follows to configure the DS1 or E1 path parameters.

```
cnfpath [-ds1|e1] <path_id> [-lpb <Loopback>] [-lt <Line Type>] [-clk <Clock Source>]
```

The **cnfpath** command parameters are described in [Table 2-12](#).



Note The **cnfpath** command parameters are the same for DS1 and E1 paths.



Note Enter the **dsppaths -ds1|e1** command to see the path numbers for all T1 (DS1) and E1 paths on the current card. Note that, in the Release 5 CLI display, the term “DS1” refers to both E1 and T1 (DS1) lines.

In the following example, the user configures the DS1 path 1.1.1:1 so that it has local loopback enabled, a *dsx1ESF* line type, and a local clock source.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpath -ds1 1.1.1:1 -lpb 2 -lt 2 -clk 2
```

- Step 7** To display the status of a path you have brought up, enter the **dsppath [-ds1|e1] <path_id>** command as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > dsppath -ds1 1.1.1:1
Path Number           : 1.1.1:1           Path Type           : ds1
Admin Status          : Up                 Alarm Status         : Clear
Operational State     : lowLayerDn        Number of ATM ports  : 0
DS1 Line Type         : dsx1ESF           Number of ATM partitions : 0
Loopback              : Local             Number of ATM SPVC   : 0
Xmt. Clock Source     : localTiming       Number of ATM SPVP   : 0
Path Service          : unspecified       Number of ATM SVC    : 0
Send Code             : No                Number of ATM Sig VC : 0
DS0 inuse Bitmap     : 0x0             Number of FR ports   : 0
                     :                   Number of FR connections : 0
                     :                   Number of IMA Links   : 0
```

Bringing Up and Configuring TUG-3s

When you configure the payload for an SDH AU-4/STM-1 path, three TUG-3s are created. All three of these TUG-3s carry the same payload you assigned to the AU-4/STM-1 path, unless you assigned a VT-structured payload to the AU-4/STM-1 path. In the case of VT-structured paths, the three TUG-3s have unspecified payloads. you can assign any payload to the TUG-3s, and each TUG-3 can carry a different payload.



Note

You can not configure/modify the payload for paths other than VT-structure paths.

Use the following procedure to assign a payload to a TUG-3.

- Step 1** Establish a configuration session using a user name with GROUP1_GP privileges or higher.
- Step 2** Enter the **cc** command to change to the card you want to configure.
- Step 3** Enter the **dsppaths -all** command to ensure the SDH path is not already channelized. The *Path* column will report the single path number 1.1.0, and the *Path Width* column will report 3, as in the following example.

```
M8850_NY.13.MPSM155[FR].a > dsppaths -all
```

Path	Path Type	Admin Status	Path Payload	Path Width	Alarm Status	Oper State
1.1.0	sts	Down	unequipped	3	Unknown	Down
	Shelf Database table	empty.	SonetVTsTable			
	Shelf Database table	empty.	Ds3PathsTable			
	Shelf Database table	empty.	Ds1PathsTable			

- Step 4** Bring up the path with the **uppath -sts <path num>** command as shown in the following example.

```
M8850_NY.13.MPSM155[FR].a > uppath -sts 1.1.0
```

- Step 5** Enter the **cnfpath -sts 1.1.0 -payload 9** command to set the payload type for the path to be VT-structured, and to channelize the AU-4/STM-1 path into three TUG-3s, as shown in the following example:

```
8850_NY.13.MPSM155[FR].a > cnfpath -sts 1.1.0 -payload 9
```

- Step 6** Enter the **dsptug3s** command to display all TUG-3s. you created in Step 4.

```
M8850_NY.13.MPSM155[FR].a > dsptug3s
```

Tug3Id	payload
1.1.0: 1	unspecified
1.1.0: 2	unspecified
1.1.0: 3	unspecified

- Step 7** Enter the **cnftug3 <Path Number:Tug3> -payload <tug3Payload>** command to configure the payload for the specified TUG-3. The **cnftug3** command parameters are described in [Table 2-17](#).

Table 2-17 *cnftug3* Command Parameters

Parameter	Description
<i>Path Number:Tug3</i>	Enter the path number for the TUG-3, in the format <i>bay.line.AU4:Tug3</i>
-payload <i><tug3Payload></i>	Enter a number to indicate the payload type for the specified path. The possible payload types are: <ul style="list-style-type: none"> • 2 = vc11. Select this payload to create 28 DS1s and 28 VC-11/TU-11(VT 1.5) paths within the specified TUG-3. • 3 = vc12. Select this payload to create 21 DS1s and 21 VC-12/TU-12 (VT 2.0) paths within the specified TUG-3. • 4 = tu3ds3. Select this parameter to create one DS3 and one TU (VT) path within the specified TUG-3. • 5 = tu3e3. Select this parameter to create one E3 and one TU (VT) path within the specified TUG-3.

In the following example, the user configures a TU-3/DS3 payload on TUG-3 1.1.0:1.

```
M8850_NY.13.MPSM155 [FR] .a > cnftug3 1.1.0:1 -payload 4
```

- Step 8** To display the status of a TUG-3 you have brought up and configured, enter the **dsptug3cnf** *<Path Number:Tug3>* command as shown in the following example. Replace *<Path Number:Tug3>* with the path number for the TUG-3, in the format *bay.line.AU4:Tug3*.

```
M8850_NY.13.MPSM155 [FR] .a > dsptug3cnf 1.1.0:1
Path Number      : 1.1.0
Tug3 Id          : 1                Payload Type      : tu3ds3
```

```
M8850_NY.13.MPSM155 [FR] .a >
```

- Step 9** Enter the **dsppaths -all** command to view all configurable sub-paths that were created in Step 5.

```
M8850_NY.13.MPSM155 [FR] .a > dsppaths -all
```

```

Path      Path      Admin      Path      Path      Alarm      Oper
Type      Type      Status     Payload   Width     Status     State
-----
1.1.0     sts       Up         vtStructured      3         Clear lowLayerDn

Path      Path      Admin      Path      Alarm      Oper
Type      Type      Status     Width     Status     State
-----
1.1.0:1   vt        Down      5-tu3     Unknown    Down

Path      Path      Admin      DS3      Path      Alarm      Oper      Path
Type      Type      Status     Type     Lpbk      Status     State     Service
-----
1.1.0:1   ds3      Down      dsx3CbitParity NoLoop    Unknown    Down     invalid
Shelf Database table empty.Ds1PathsTable
```

- Step 10** Use the appropriate procedure to bring up and configure TUG-3 sub-paths:
- To bring up and configure VT paths, see the “[Bringing Up and Configuring TUG-3s](#)” procedure earlier in this chapter.
 - To bring up and configure DS1 paths, see the “[Bringing Up and Configuring DS1\(T1\) and E1 Paths](#)” procedure earlier in this chapter.

- To bring up, further channelize, and configure DS3 paths, see the “[Bringing Up and Configuring a DS3 \(T3\) Path](#)” procedure earlier in this chapter.

Setting the Service Context on MPSM-T3E3-155 and MPSM-16-T1E1 Cards

The MPSM-T3E3-155 and MPSM-16-T1E1 cards support both ATM and Frame Relay services simultaneously. In order to support these individual services, each card maintains the following service contexts:

- ATM — provides ATM service management commands
- Frame Relay — provides Frame Relay service management commands.

This service context information is stored as a part of the card configuration for that logical slot on the hard disk on the controller card. You can switch to either service (ATM or Frame Relay) at any time by entering the **setctx** command. You need to switch to the appropriate service each time you want to manage Frame Relay or ATM services.

You can change the default service context of the logical slot with the **cnfclctx** command. The default service context is the context that will be used when you first **cc** to the card. For example, if you are only using ATM on a card, it would be best to set the default context to ATM. However, if half of the ports are configured for ATM and the other half are configured for Frame Relay, the default context may not matter to you, and you can set it any way you want to.

Before you can provision Frame Relay or ATM services on the card, you must ensure that it is in the proper service context. Before you can provision ATM services as described in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) the card must be in the ATM service context. Before you can provision Frame Relay services as described in [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1,”](#) the card must be in the Frame Relay service context.

Setting the Default Service Context

The default service context is the service that is available when you first **cc** to the card. For example, if the card’s default service context is set to Frame Relay, then that card will always be in the Frame Relay service context when you first **cc** to the card. On other words, only the Frame Relay CLI will be available until you change to the ATM CLI context with the **setctx atm** command, or until you change the default service context to ATM with the **cnfclctx atm** command. Use the following procedure to set the default service context.

- Step 1** Enter the **dspclctx** command to display the default CLI service context that is currently configured in the database for the logical slot. In the following example, the default service context is FR (Frame Relay).

```
M8850_NY.13.MPSM155[FR].a > dspclctx
This card's default service context is: FR
```

- Step 2** Enter the **cnfclctx <service context>** command to change the default service context for the current card. Replace **<service context>** with **atm** to change the default service context to be ATM, or replace it with **fr** to change the default service context to be Frame Relay. In the following example, the user changes the service context to be ATM.

```
M8850_NY.13.MPSM155[FR].a > cnfclctx atm
```

Step 3 Enter the **dspclctx** command to verify that the default service context has been changed to be ATM.

```
M8850_NY.13.MPSM155 [FR] .a > dspclctx
M8850_NY.13.MPSM155 [FR] .a > This card's default service context is: ATM
```

Note that the command prompt does not change to reflect the default service context that was set with the **cnfclctx** command. In the example, the command prompt shows [FR] (Frame Relay), even though the user just set the default CLI context to be ATM. This is because the current CLI context for the card in slot 13 has been set to Frame Relay with the **setctx** command. The switch prompt will show [FR] (Frame Relay) until the user changes the CLI context to be ATM with the **setctx** command, or until the user logs out of the current session.

Switching from one CLI Context to Another

The current CLI context for the MPSM-T3E3-155 or MPSM-16-T1E1 is reflected in the switch prompt. If the current CLI context for the card is ATM, the switch prompt includes [ATM] with the card name, as shown in the following example:

```
M8830_CH.12.MPSM155[ATM].a >
```

If the current CLI context for the card is Frame Relay, the switch prompt includes [FR] with the card name, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a >
```

To switch from one CLI context to another, enter the **setctx <service context>** command. Replace *<service context>* with **atm** to set the current CLI context to be ATM, or replace it with **fr** to set the current CLI context to be Frame Relay.

In the following example, the user sets the CLI context to be Frame Relay.

```
M8850_NY.13.MPSM155 [ATM] .a > setctx fr
M8830_CH.12.MPSM155 [FR] .a >
```

Note that the switch prompt reflects the CLI context change to Frame Relay. Only the commands specific to the Frame Relay service context are visible and available in that CLI session until the CLI context is changed to ATM with the **setctx atm** command, or until the user ends the current session (if the default CLI context was set to ATM with the **cnfclctx atm** command.)



Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1

This chapter describes how to provision ATM services on the MPSM-T3E3-155 and MPSM-16-T1E1 cards, and provides procedures for adding ATM ports and connections to the physical lines and paths. The types of links and connections presented in this chapter are listed in [Table 3-1](#).



Note

Before you perform the procedures in this section, you must set up the MPSM-T3E3-155 and MPSM-16-T1E1 cards and lines from the PXM controller as described in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#) Make sure that you select the appropriate card SCT for the controller that you are using.

Table 3-1 *MPSM-T3E3-155 and MPSM-16-T1E1 ATM Link and Connection Types*

ATM Link or Connection Type	Description
PNNI trunks	NNI trunks connect Cisco MGX switches to other Cisco MGX switches.
PNNI UNI ports	PNNI UNI ports connect Cisco MGX switches to CPE.
Switched Virtual Circuits (SVCs)	SVCs are temporary connections that are brought up and torn down upon request from CPE.
Soft Permanent Virtual Circuits (SPVCs)	SPVCs are permanent connections that can be rerouted if a link fails.
PNNI virtual trunks	PNNI virtual trunks are used to traverse public networks. The virtual trunk endpoints are on separate networks, but the path between the networks is treated as one link.
Cisco BPX PNNI trunks	Cisco BPX PNNI trunks provide PNNI links between Cisco MGX 8850/8830 switches and Cisco BPX switches that support PNNI. The Cisco BPX switch supports PNNI when connected to the Cisco SES PNNI controller.

Table 3-1 MPSM-T3E3-155 and MPSM-16-T1E1 ATM Link and Connection Types (continued)

ATM Link or Connection Type	Description
ATM Inter-Network Interface (AINI) links	AINI links enable connectivity between two independent PNNI networks and block the PNNI database exchange so the two networks remain independent.
Interim Inter-switch Protocol (IISP) links	IISP links enable connectivity between two independent PNNI networks and block the PNNI database exchange so the two networks remain independent. IISP is the predecessor to AINI and should be used only when AINI is not supported on one or both ends of the network link.

The MPSM-T3E3-155 and MPSM-16-T1E1 supports ATM SPVCs, SPVPs, and SVCs to the following cards:

- another MPSM-T3E3-155
- another MPSM-16-T1E1
- MPSM-8
- FRSM12, FRSM-8, FRSM-2CT3, FRSM-2T3E3, FRSM-HS2/B
- RPM
- AUSM
- AXSM/B, AXSM-E, AXSM-XG
- PXM1E
- VISM
- CESM-8
- BXM (on a BPX 8600 switch)

To perform the procedures in this section, you must start a CLI session on the appropriate MPSM-T3E3-155 and MPSM-16-T1E1 cards by logging in with the appropriate username and password. For detailed information about usernames, passwords, and logging into the CLI, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

**Note**

To perform the procedures in this section, you must log in as a user with Group1 privileges or higher.

Quickstart Provisioning Procedures

This section presents abbreviated procedures that you can use to configure lines and provision connections. These procedures are for experienced users who already have experience configuring the MPSM-T3E3-155 and MPSM-16-T1E1 cards.

ATM Trunk Configuration Quickstart

ATM trunks connect the switch to other ATM switches in the core ATM network. The quickstart procedure in this section provides a summary of the tasks required to configure ATM trunks on Cisco MGX switches. This procedure is a quick reference for those who have previously configured these types of connections.



Note The trunk configuration is not complete until the following procedure has been completed on the switches at both ends of the trunk.

	Command	Comments
Step 1	<i>username</i> <i><password></i>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2	cc	Change to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 3	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 4	upln	Bring up lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 5	addport or addimagrp addimalnk addimaport Related command: dsports	Add and configure ATM ports. This step establishes ATM communication between two ATM devices. Specify NNI for interswitch trunks. For standard port configuration, see the “Adding ATM Ports” section on page 3-18. To configure ATM communication over an IMA group, see the “Configuring Inverse Multiplexing over ATM” section later in this chapter. Note The MPSM-T3E3-155 and MPSM-16-T1E1 require a multilink license for IMA configuration. Without a multilink license, you cannot configure IMA on the MPSM-T3E3-155 and MPSM-16-T1E1 cards. To view the feature licenses that are assigned to or are needed by the cards, enter the dsplccd command
Step 6	cnfport Related commands: dsports dsports	Use this optional step to make changes to the port created in the previous step. For more information on modifying ports, see the “Adding ATM Ports” section later in this chapter.

	Command	Comments
Step 7	cnfpart Related commands: dspparts dsppart	Configure trunk resources that are assigned to the PNNI controller. This step can assign all trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. See the “Partitioning Port Resources on the PNNI Controller” section on page 3-31. Note On the MPSM-T3E3-155 and MPSM-16-T1E1, a partition is automatically added when you add a port. To change the configuration of a resource partition, use the cnfpart command.
Step 8	cc	Change to the PXM card.
Step 9	dnpport cnfppnportsig uppport Related commands: dsppnports dsppnport dsppnportsig	Define the signaling protocol used on the trunk. Specify pnni10 for PNNI trunks. See the “Selecting the Port Signaling Protocol” section on page 3-34.
Step 10		Configure the other end of the link. If the other end of the link is connected to another MPSM-T3E3-155 or MPSM-16-T1E1 card, repeat Step 1 through Step 8. If the other end of the link is on a different card type, refer the documentation for that card.
Step 11	cc dsppnni-link dsppnni-neighbor	When both ends of the link are configured, change to the active PXM card and verify the PNNI communication between the two ends of the connection. In the dsppnni-link report, there should be an entry for the port for which you are verifying communication. The Hello state reported should be twoWayInside, and the Remote node ID should display the remote node ATM address after the second colon. See the “Verifying PNNI Trunk Communication” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”
Step 12	cc	Change back to the appropriate card.
Step 13	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 14	upilmi cnfilmi Related commands: dspports dspilmis	This step is optional. Configure and start ILMI on trunks where you want to support Cisco WAN Manager or use ILMI features. See the “Configuring ILMI on a Port” section on page 3-36.

After you configure an MPSM-T3E3-155 or MPSM-16-T1E1 trunk, the trunk is ready to support SVCs. You can also create SPVCs and SPVPs between the CPE at each end of the trunk.

PNNI UNI Port Configuration Quickstart

ATM UNI ports connect the switch to ATM end devices, which serve as the boundary between the ATM network and other communication paths or networks. Typical end devices include ATM routers and multiservice concentrators. UNI signaling is used between the end system (CPE) and the PNNI network for requesting calls.

The quickstart procedure in this section provides a summary of the tasks required to configure UNI ports on Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 switches. This procedure is provided as an overview and as a quick reference for those who have previously configured UNI ports.

	Command	Comments
Step 1	<i>username</i> <i><password></i>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2	cc	Change to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 3	upln	Bring up MPSM-T3E3-155 lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 4	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 5	addport or addimagrp addimalnk addimaport Related command: dsports	Add and configure ATM ports. This step establishes ATM communication between two ATM devices. Specify UNI for interswitch trunks. For standard port configuration, see the “Adding ATM Ports” section on page 3-18. To configure ATM communication over an IMA group, see the “Configuring Inverse Multiplexing over ATM” section later in this chapter. Note The MPSM-T3E3-155 and MPSM-16-T1E1 require a multilink license for IMA configuration. Without a multilink license, you cannot configure IMA on the cards. To view the feature licenses that are assigned to or are needed by the cards, enter the dsplccd command.
Step 6	cnfport Related commands: dsports dsports	Use this optional step if you need to make changes to the port created in the previous step. For more information on modifying ports, see the “Adding ATM Ports” section later in this chapter.

	Command	Comments
Step 7	cnfpart Related commands: dspparts dsppart	Configure the trunk resources that are assigned to the PNNI controller. This step can assign all of the trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. See the “Partitioning Port Resources on the PNNI Controller” section on page 3-31. Note On the MPSM-T3E3-155 and MPSM-16-T1E1, a partition is automatically added when you add a port. Use the cnfpart command to change the configuration of a resource partition.
Step 8	cc	Change to the PXM card.
Step 9	dnpnport <portid>	Bring down the port so it can be configured. The next three steps require this step.
Step 10	cnfnpnportsig Related commands: dsppnports dsppnport dsppnportsig	Define the signaling protocol used on the line. Specify uni30 , uni31 , or uni40 . See the “Selecting the Port Signaling Protocol” section on page 3-34.
Step 11	cnfaddrreg addaddr Related commands: dsppnports dspatmaddr deladdr	Configure static ATM addresses for ports that require them. See the “Configuring ILMI on a Port” section on page 3-36.
Step 12	addprfx Related commands: cnfaddrreg dspprfx	If dynamic addressing is to be used on a port, define an ATM address prefix that ILMI can use when assigning addresses. See the “Configuring ILMI Dynamic Addressing” section on page 3-40.
Step 13	uppnport	Bring up port after configuration is complete.
Step 14	cc	Change back to the appropriate card.
Step 15	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 16	upilmi cnfilmi Related commands: dsports dspilmis	Configure and start ILMI on the port. This step is required for dynamic addressing and the ILMI automatic configuration feature. Otherwise, it is optional. See the “Configuring ILMI on a Port” section on page 3-36.

SVC Configuration Quickstart

Switched virtual circuits (SVCs) are the solution for on-demand connections. They are set up as needed and torn down when no longer needed. To enable this dynamic activity, SVCs use signaling. End systems request connectivity to other end systems and, provided that the requested services are available, the connection is set up at the time of the request. When idle, an SVC is taken down to save network bandwidth.

Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 switches can use the PNNI protocol to determine how to set up SVCs through the network. Because the switch automatically sets up SVCs, you do not have to configure SVC routes. However, the switch must be configured correctly before it can set up SVCs. The following quickstart procedure summarizes the tasks required to enable SVC communication. With the exception of CPE configuration, all these tasks are described in this chapter.



Note The tasks in the following procedure do not have to be completed in the order presented. However, all tasks must be completed before SVCs will operate.

	Command	Comments
Step 1	See the “ATM Trunk Configuration Quickstart” section on page 3-3.	Configure the trunks that link the switches through which the ATM end stations connect. Be sure to add the PNNI controller on each switch and select that controller when partitioning trunks.
Step 2	dsppnni-reachable-addr network	At the PXM, verify connectivity between the node pairs that will host SVCs. See the “Verifying End-to-End PNNI Communications” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”
Step 3	See the “PNNI UNI Port Configuration Quickstart” section on page 3-5.	Configure UNI ports for the ATM end stations at each end of the SVC, and assign either static or dynamic addressing to each line. Be sure to add the PNNI controller on each switch and select that controller when partitioning trunks.
Step 4	See the CPE documentation.	Configure CPE devices for communication with the switch through the UNI ports configured in the previous step.
Step 5	dsppncons	This optional step displays the SVC connections that are operating. Enter this command on the active PXM.

It is beyond the scope of this guide to describe how to configure each model of CPE to communicate with the switch. To complete this configuration, you must learn the capabilities of the CPE and the switch and define a set of communication parameters that are supported by both devices. For example, the Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 switches support UNI 3.1 communication, but if the CPE does not, you must select a signaling protocol (such as UNI 3.0) that is supported by both devices.

After all requirements are met for SVC connections, CPE devices can establish SVC connections to other CPE devices on the same switched network.

SPVC and SPVP Configuration Quickstart

Soft permanent virtual circuits (SPVC) and soft permanent virtual paths (SPVP) are full-time circuits and paths that Private Network-to-Network Interface (PNNI) can reroute to avoid failed communication links or to utilize links that offer better bandwidth. SPVPs support multiple virtual circuits, whereas SPVCs represent a single virtual circuit.

The quickstart procedure in this section provides a summary of the tasks required to configure SPVCs and SPVPs on Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 switches. This procedure is provided as an overview and as a quick reference for those who have previously configured these types of connections.

	Command	Comments
Step 1	See the “ATM Trunk Configuration Quickstart” section on page 3-3.	Configure the trunks that link the switches through which the ATM end stations connect. Be sure to add the PNNI controller on each switch and select that controller when partitioning trunks.
Step 2	dsppnni-reachable-addr network	At the PXM, verify connectivity between the node pairs that will host SVCs. See the “Verifying End-to-End PNNI Communications” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”
Step 3	See the “PNNI UNI Port Configuration Quickstart” section on page 3-5.	Configure UNI ports for the ATM end stations at each end of the SVC, and assign either static or dynamic addressing to each line. Be sure to add the PNNI controller on each switch and select that controller when you partition trunks.
Step 4	cc	Change to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 5	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 6	addcon Related commands: dspchans dspchan	If you are configuring a double-ended SPVC/SPVP, configure the slave side of the SPVC/SPVP. If the slave side of the connection is on: <ul style="list-style-type: none"> An MPSM card, see the “Configuring the Slave Side of SPVCs and SPVPs” section on page 44. A non-MPSM card, refer to the documentation for that card. <p>Note If you are configuring a single-ended SPVC/SPVP, you do not need to configure the slave end of an SPVC/SPVP.</p>
Step 7	dspcon	Verify the configuration for the connection you added in Step 6.
Step 8	<i>username</i> <i><password></i> or cc	If you are configuring an SPVC/SPVP between: <ul style="list-style-type: none"> The MPSM and a remote card—Log onto the remote card. Two ports on the current MPSM card—Change to the desired card using the cc command.

	Command	Comments
Step 9	addcon Related commands: dspecon dspecons	Add and configure the master side of an SPVC/SPVP on the remote card. If the master side of the connection is on: <ul style="list-style-type: none"> • The MPSM card, see the “Configuring the Master Side of SPVCs and SPVPs” section on page 52. • A non-MPSM card, refer to the documentation for that card.
Step 10	dsppncons	This optional step displays the SVC connections that are operating. Enter this command on the active PXM.

PNNI Virtual Trunk Configuration Quickstart

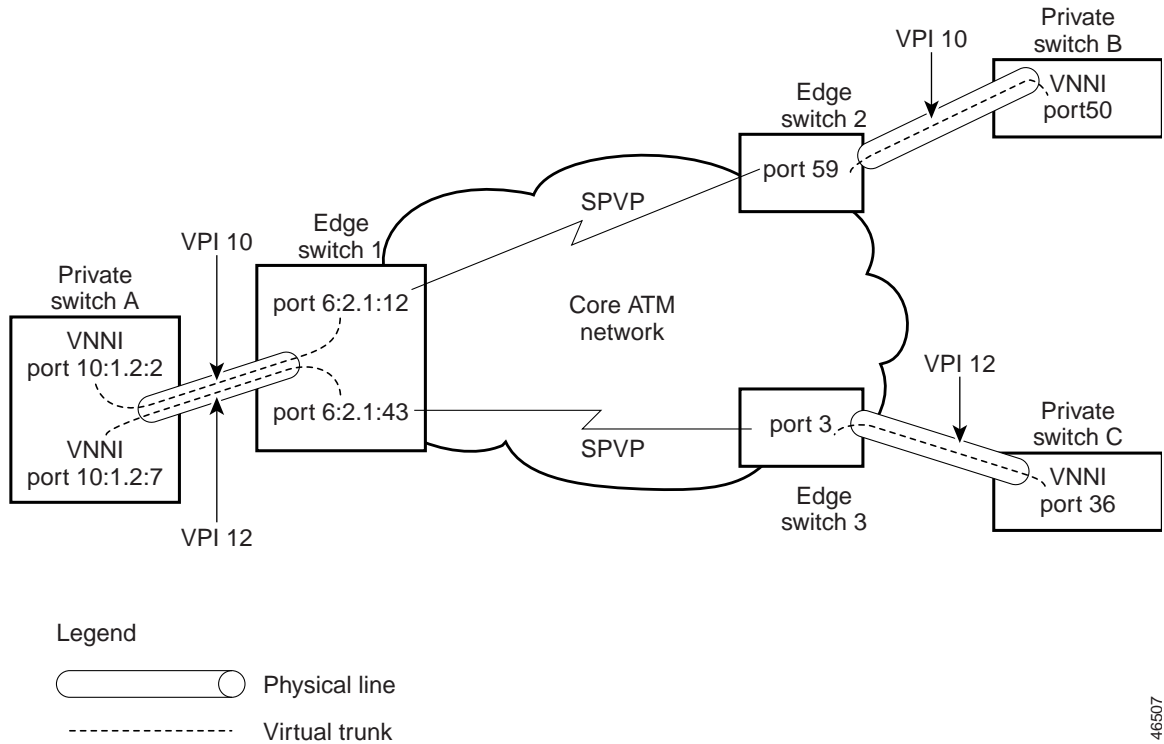
Virtual trunks are introduced and explained in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*. [Figure 3-1](#) illustrates how to configure a virtual trunk.

The Cisco MGX 8850 (PXM1E/PXM45) and Cisco MGX 8830 switches support:

- Up to 256 SPVPs across an ATM core network (or ATM cloud). The range is from 0 to 255.
- Up to 60 virtual trunks on a physical interface with up to 100 ports per switch.

[Figure 3-1](#) shows a network topology that has two virtual trunks. At Private Switch A, both virtual trunks use the same line to connect to the core ATM network. Within the core ATM network, soft virtual permanent paths (SPVPs) provide direct communication paths between the core edge switches. Private Switch A has virtual trunks to Private Switches B and C and communicates with them as though they were directly connected.

Figure 3-1 Virtual Trunk Configuration



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To configure end-to-end virtual trunks, perform the following tasks:

- Configure virtual trunks between each private switch and the corresponding core edge switch.
- Configure SPVPs between core edge switches that complete the virtual trunk path.

The following procedure summarizes the task of configuring virtual trunks and SPVPs.

Command	Comments
Step 1 <i>username</i> <i><password></i>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2 cc	Change to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 3 upln	Bring up lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 4 setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.

	Command	Comments
Step 5	Add a channelized path: cnfpath uppath Related commands: dsppath dsppaths	Add and configure a channelized path. Perform this step only if you are configuring a virtual trunk on an MPSM-T3E3-155 port. See the “ Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines ” section in Chapter 2, “ Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication ,” for details.
Step 6	addport or addimagrp addimalnk addimaport Related commands: dspports dspimagrps dspimalnks	Add the virtual trunk end ports at the private switches. Select interface type 3 for VNNI. See the “ Adding ATM Ports ” section on page 3-18. Or if you are configuring IMA, add and configure IMA groups, then IMA links, then IMA ports. See the “ Configuring Inverse Multiplexing over ATM ” section on page 3-22. Note The MPSM-T3E3-155 and MPSM-16-T1E1 card require a multilink license for IMA configuration. Without a multilink license, you cannot configure IMA on the cards. To view the feature licenses that are assigned to or are needed by the cards, enter the dspliced command.
Step 7	cnfpart Related commands: dspparts dsppart	Optional: Configure the trunk resources that are assigned to the PNNI controller. This step can assign all trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. Note A partition is automatically added when you add a port. Use the cnfpart command to change the configuration of a resource partition. Note Enter the same VPI number for the minVpi and maxVpi parameters. This number becomes the VPI number for the trunk. See the “ Partitioning Port Resources on the PNNI Controller ” section on page 3-31.
Step 8	cc	Change to the PXM card.
Step 9	dnpnport cnfpnportsig uppnport Related commands: dsppnports dsppnport dsppnportsig	Configure the virtual trunk signaling at the private switches. Select PNNI signaling by setting the -nniver option to pnni10 . See the “ Selecting the Port Signaling Protocol ” section on page 3-34.
Step 10	cc	Change back to the card.
Step 11	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure that you are using the ATM CLI.

	Command	Comments
Step 12	addport or addimagrp addimalnk addimaport Related commands: dsports dspimagrps dspimalnks	Add and configure the virtual trunk end ports at each core edge node. Specify interface type 1 for UNI or 2 for NNI. See the “Adding ATM Ports” section on page 3-18.
Step 13	cnfpart Related commands: dspparts dsppart	Configure the virtual trunk partitions at each core edge node. Use a VPI range that includes all VPI numbers set for virtual trunks on this line at the private switch. Note When you add a port, a partition is automatically added. To change the configuration of a resource partition, use the cnfpart command. See the “Partitioning Port Resources on the PNNI Controller” section on page 3-31.
Step 14	cc	Change to the PXM card.
Step 15	dnpnport cnfnportsig uppnport Related commands: dsppnports dsppnport dsppnportsig	Configure the virtual trunk signaling at each core edge node. Select no trunk signaling by setting the -univer option (UNI ports) to none or the -nniver option (NNI ports) to none . See the “Selecting the Port Signaling Protocol” section, which appears later in this chapter.
Step 16	cc	Change to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 17	setctx atm	If the current CLI context is Frame Relay, use the setctx atm command to ensure you are using the ATM CLI.
Step 18	addcon <options> Related commands: dspcon dspcons	For each virtual trunk, configure an SPVP between the virtual trunk ports at each edge of the core network. See the “SPVC and SPVP Configuration Quickstart” .
Step 19	cc	Change to the PXM card.
Step 20	dsppnni-reachable-addr network	Verify PNNI connectivity between the two nodes that will host the virtual trunk end points. See the “Verifying End-to-End PNNI Communications” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”

Cisco BPX PNNI Trunk Configuration Quickstart

When the Cisco SES PNNI controller is attached to a Cisco BPX switch, the Cisco BPX switch can participate in a PNNI network with Cisco MGX 8850 (PXM1E/PXM45) or Cisco MGX 8830 switches. The connection between a Cisco MGX 8850 (PXM1E/PXM45) or Cisco MGX 8830 switch and a Cisco BPX switch is a trunk between an MPSM card in the Cisco MGX switch and a Cisco BXM card in the Cisco BPX switch. For instructions on configuring the BXM end of the trunk, refer to the Cisco SES product documentation. This section describes how to configure the MPSM end of the trunk.

The procedure for configuring the MPSM end of the trunk is similar to the general procedure for configuring MPSM trunks. The following procedure is customized for setting up Cisco BPX PNNI trunks.



Note

The trunk configuration is not complete until the BXM end of the trunk is configured.



Caution

Before you can configure a BPX PNNI trunk, you must allocate PNNI resources. To verify that a PNNI resource is allocated on the trunk, enter the **dsprsrc** *<slot.port>* command on the active PXM.

	Command	Comments
Step 1	<i>username</i> <i><password></i>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2	upln	Bring up lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 3	cnfpath Related commands: dsppath dsppaths	Add and configure a channelized path. Do this step only if you are configuring a virtual trunk on an MPSM-T3E3-155. See “Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines” in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 4	uppath Related commands: dsppath dsppaths	Bring up the path you configured in Step 3.
Step 5	addport Related command: dsports	Add and configure ATM ports. This step establishes ATM communication between two ATM devices. Specify NNI for interswitch trunks and VNNI for virtual trunks. For ATM ports, see the “Adding ATM Ports” section on page 3-18. For IMA ports, see the “Configuring Inverse Multiplexing over ATM” section on page 3-22.

	Command	Comments
Step 6	cnfpart Related commands: dspparts dsppart	Optional: Configure the trunk resources that are assigned to the PNNI controller. This step can assign all trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. Note When you add a port, a partition is automatically added. To change the configuration of a resource partition, use the cnfpart command. See the “Partitioning Port Resources on the PNNI Controller” section on page 3-31.
Step 7	cc	Change to the PXM card.
Step 8	dnpport cnfppnportsig uppport Related commands: dsppnports dsppnport dsppnportsig	Configure the signaling protocol used on the trunk to be pnni10 . For example: <pre>MGX8850.7.PXM.a > cnfppnportsig <portid> -nniver pnni10</pre> See the “Selecting the Port Signaling Protocol” section on page 3-34.
Step 9	cc	Change back to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 10	upilmi cnfilmi Related commands: dspports dspilmis	Configure and start ILMI on the trunk. ILMI is required on the BXM end of the trunk, so it must be enabled on the MPSM side too. See the “Configuring ILMI on a Port” section on page 3-36.
Step 11	cc	Change to the PXM card.
Step 12	dsppnni-link dsppnni-neighbor	After you have configured both ends of the link, verify the PNNI communication. In the dsppnni-link report, an entry for the port for which you are verifying communication should appear. The reported Hello state should be twoWayInside and the Remote node ID should display the remote node ATM address after the second colon. See the “Verifying PNNI Trunk Communication” section in Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”

After you configure a Cisco BPX PNNI trunk, the trunk is ready to support SVCs. You can also create SPVCs and SPVPs between CPE at each end of the trunk as described in the [“Configuring the Master Side of SPVCs and SPVPs” section on page 3-52.](#)

AINI Link Configuration Quickstart

The quickstart procedure in this section provides a summary of the tasks required to configure ATM Inter-Network Interface (AINI) links on Cisco MGX switches. This procedure is an overview and acts as a quick reference for those who have previously configured these types of connections.



Note

AINI is a new protocol that is designed to replace the function of IISP. Unless you are configuring a link with another switch that does not support AINI, you should configure an AINI link instead of an IISP link. IISP links provide fewer capabilities than AINI links. For example, IISP links cannot support UNI V4.0 connections.

	Command	Comments
Step 1	<i>username</i> <i><password></i>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2	upln	Bring up lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 3	cnfpath Related commands: dsppath dsppaths	Add and configure a channelized path. Do this step only if you are configuring a virtual trunk on an MPSM-T3E3-155. See the “ Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines ” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,” for details.
Step 4	uppath Related commands: dsppath dsppaths	Bring up the path you configured in Step 3.
Step 5	addport Related command: dspports	Add and configure ATM ports. This step establishes ATM communication between two ATM devices. Specify NNI for interswitch trunks and VNNI for virtual trunks. See the “ Adding ATM Ports ” section on page 3-18.
Step 6	cnfpart Related commands: dspparts dsppart	Optional: Configure the trunk resources that are assigned to the PNNI controller. This step can assign all trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. See the “ Partitioning Port Resources on the PNNI Controller ” section on page 3-31. Note When you add a port, a partition is automatically added. To change the configuration of a resource partition, use the cnfpart command.
Step 7	cc	Change to the PXM card.

	Command	Comments
Step 8	dnpport cnfpportsig uppport Related commands: dsppports dsppport dsppportsig	Configure the signaling protocol used on the trunk to be aini . For example: <pre>MGX8850.7.PXM.a > cnfpportsig <portid> -nniver aini</pre> See the “Selecting the Port Signaling Protocol” section on page 3-34.
Step 9	cc	Change back to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 10	addaddr	Add destination addresses to each end of the trunk. See the “Defining Destination Addresses for Static Links” section on page 3-54.
Step 11	addaddr	Add static addresses to destination ports. This step is required when addresses are not dynamically assigned to the CPE at the destination ports. See the “Defining Destination Addresses for Static Links” section on page 3-54.

IISP Link Configuration Quickstart

The quickstart procedure in this section provides a summary of the tasks required to configure Interim Inter-Switch Protocol (IISP) links on Cisco MGX switches. This procedure is provided as an overview and as a quick reference for those who have previously configured these types of connections.



Note

AINI is a new protocol that is designed to replace the function of IISP. Unless you are configuring a link with another switch that does not support AINI, you should configure an AINI link instead of an IISP link. IISP links provide fewer capabilities than AINI links. For example, IISP links cannot support UNI V4.0 connections.

	Command	Comments
Step 1	username <password>	Start a configuration session. To perform all of the steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.
Step 2		Bring up MPSM-T3E3-155 lines as described in the Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”
Step 3	cnfpath Related commands: dsppath dsppaths	Add and configure a channelized path. Do this step only if you are configuring a virtual trunk on an MPSM-T3E3-155. See the “Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,” for details.

	Command	Comments
Step 4	uppath Related commands: dsppath dsppaths	Bring up the path you configured in Step 3.
Step 5	addport Related command: dspports	Add and configure ATM ports. This step establishes ATM communication between two ATM devices. Specify NNI for interswitch trunks and VNNI for virtual trunks. See the “Adding ATM Ports” section on page 3-18 .
Step 6	cnfpart Related commands: dspparts dsppart	Optional: Configure the trunk resources that are assigned to the PNNI controller. This step can assign all trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller. See the “Partitioning Port Resources on the PNNI Controller” section on page 3-31 . Note When you add a port, a partition is automatically added. To change the configuration of a resource partition, use the cnfpart command.
Step 7	cc	Change to the PXM card.
Step 8	dnpport cnfppnportsig uppport Related commands: dsppnports dsppnport dsppnportsig	Configure the signaling protocol used on the trunk to be either iisp30 or iisp31 for IISP trunks. For example: <pre>MGX8850.7.PXM.a > cnfppnportsig <portid> -nniver iisp31</pre> See the “Selecting the Port Signaling Protocol” section on page 3-34 .
Step 9	cc	Change back to the MPSM-T3E3-155 or MPSM-16-T1E1 card.
Step 10	addaddr	Add destination addresses to each end of the trunk. See the “Defining Destination Addresses for Static Links” section later in this chapter .
Step 11	addaddr	Add static addresses to destination ports. This step is required when addresses are not dynamically assigned to the CPE at the destination ports. See the “Defining Destination Addresses for Static Links” section later in this chapter .

ATM Configuration Concepts

This section describes the following MPSM-T3E3-155 and MPSM-16-T1E1 ATM configuration concepts and general procedures:

- [Adding ATM Ports](#)
- [Configuring Inverse Multiplexing over ATM](#)
- [Partitioning Port Resources on the PNNI Controller](#)
- [Selecting the Port Signaling Protocol](#)
- [Configuring ILMI on a Port](#)
- [Provisioning and Managing SPVCs and SPVPs](#)
- [Defining Destination Addresses for Static Links](#)

Most of the descriptions and procedures in this section use ATM service context commands. See [Chapter 7, “Command Reference”](#) for detailed descriptions of the MPSM-T3E3-155 and MPSM-16-T1E1 **ATM service** commands and parameters. Some of the procedures in this section use PXM commands and PNNI commands. Refer to the *Cisco MGX 8800/8900 Series Command Reference, Release 5.2* for descriptions of the PXM and PNNI commands and parameters.

Refer to the following documentation for additional information regarding ATM provisioning:

- For a list of the MPSM-T3E3-155 and MPSM-16-T1E1 model numbers, back cards, and the number of possible connections, see [Table 1-2 in Chapter 1, “Introduction”](#).
- For more information on port signaling, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.
- For more information on ATM address planning, refer to the *Cisco MGX and SES PNNI Network Planning Guide*.
- For information on additional ILMI management procedures, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*. See the [Chapter 7, “Command Reference”](#) for descriptions of ILMI commands and parameters.

Adding ATM Ports

On an MPSM-T3E3-155 or MPSM-16-T1E1 card, a logical port is also called a virtual interface and is represented by the *ifNum* variable. The MPSM cards can have the following types of interfaces:

- UNI (User-to-Network Interface)—You can configure only one logical port per line.
- NNI (Network-to-Network Interface)—You can configure only one logical port per line.
- VNNI (Virtual Network-to-Network Interface)—You can configure multiple ports per line.
- VUNI (Virtual User-to-Network Interface)—You can configure multiple ports per line.
- EVUNI (Enhanced Virtual User-to-Network Interface)—You can specify a range of VPIs for one interface, and this range of VPIs represents the virtual UNI trunk.
- EVNNI (Enhanced Virtual Network-to-Network Interface)—You can specify a range of VPIs for one interface, and this range of VPIs represents the virtual NNI trunk.

Bringing up a line establishes minimal connectivity between two nodes. When you add an ATM port to a line or path, you enable ATM communication over the line.

Each line can support UNI, NNI, VNNI, EVNNI, or EVUNI ports. UNI ports are used for lines that connect to PBXs, ATM routers, and other ATM devices that connect to the core ATM network through the switch. NNI ports are used for trunks that connect to other core ATM network devices, such as another MGX 8850 switch. VNNI ports support virtual trunk connections between two ATM end stations. EVNNI and EVUNI are enhanced virtual trunks for network and user connections.

You must configure one ATM port for each line or path to enable ATM communication over that link.

When you add the ATM port to the line or path, you define the port type (UNI, VUNI, NNI, VNNI, EVNNI, or EVUNI).

**Note**

You cannot add a port directly on a SONET line. If you are configuring lines on an OC-3 back card (the SFP-2-155 or SMB-2-155-EL), you must first configure paths on the SONET line, as described in the “Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 (T3) Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”

To add an ATM port to a path or line, use the following procedure.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Obtain the line or path number on which you will add the port, and verify that the line/path and port number you want to use is not already configured.
- To display a list of the lines and their numbers, enter the **dsplns** command:
- ```
MGX8850.10.MPSM-155 [ATM] .a > dsplns
```
- If you adding a port to a path, enter the **dsppaths -all** command to display a list of all paths:
- ```
MGX8850.10.MPSM-155 [ATM] .a > dsppaths -all
```
- Step 3** To display a list of the ports already configured on the card, enter the **dsports** command as shown in the following example:

```
M8850_NY.13.MPSM155 [ATM] .a > dsports
```

ifNum	Line/ Path	Admin State	Oper State	Guaranteed Rate	Maximum Rate	sctID Cnf/InUse	ifType	VPI (VNNI, VUNI)	MINVPI (EVUNI, EVNNI)	MAXVPI (EVUNI, EVNNI)	IMA GRP
4	1.1.1	Up	LowLayerDn	100	100	0/ 0 =Def	NNI	0	0	0	N/A

This command displays the existing port numbers on the card in the ifNum (interface number) column. The interfaces listed can include UNI, NNI, VNNI, EVNNI, and EVUNI ports. When you add a port, you must specify a port number that is unique on the card. For example, if port number 2 is assigned to line 1.1 (bay 1, line 1), you cannot use port 2 on any other line on that MPSM-T3E3-155 card.

- Step 4** To add an ATM port to a line or path, enter the **addport** command as follows:
- ```
M8850_NY.13.MPSM155 [ATM] .a > addport <ifNum> <path_num> <guaranteedRate> <maxRate> <sctID>
<ifType> [-vpi <vpi>] [-minvpi <minvpi>] [-maxvpi <maxvpi>]
```

Table 3-2 lists the parameters for configuring ATM ports.

**Table 3-2 Parameters for Configuring ATM Ports Using the `addport` Command**

| Parameter             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i>          | <p>Specifies the interface number (port number) of the port you are adding.</p> <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 4–499</li> <li>MPSM-T3E3-155 range: 4–1003</li> </ul> <p><b>Note</b> Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>path_num</i>       | <p>Identifies the line or path on which to add the port:</p> <ul style="list-style-type: none"> <li>T1/E1 or T3/E3 line: <i>bay.line</i></li> <li>DS3 payload: <i>bay.line[.sts]:[ds1]</i></li> <li>VT payload: <i>bay.line[.sts]:[vtg.vt]</i></li> <li>VT structured: <i>bay.line[.sts]:[tug3.vtg.vt]</i></li> </ul> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p><b>Note</b> To see the path numbers for all available paths, use the <b>dsppaths</b> command. To see line numbers for all available lines, use the <b>dsplns</b> command.</p> <p><b>Note</b> On a BNC-3-T3 or BNC-3-E3 back card, you can add a port on a physical line or on a path. On an SFP-2-155 and the SMB-2-155-EL OC-3 back card, you can add a port on a path only.</p>                                                              |
| <i>guaranteedRate</i> | <p>Specifies the guaranteed rate on a port in cells per second. The guaranteed rate can be either max cell rate of the interface, or a multiple of 50.</p> <p>The total guaranteed rates cannot exceed the highest value in the following ranges:</p> <ul style="list-style-type: none"> <li>MPSM-T3E3-155 ranges: <ul style="list-style-type: none"> <li>OC-3—50 through 353207 cps</li> <li>STS1—50 through 114113 cps</li> <li>DS3—Between 50 and 96000(PLCP) or 104268(ADM)</li> <li>E3—50 and 80000</li> <li>E1—Between 50 and 4528 cps</li> <li>DS1—Between 50 and 3622 cps</li> </ul> </li> <li>MPSM-T3E3-155 and MPSM-16-T1E1 ranges: <ul style="list-style-type: none"> <li>E1—Between 50 and 4528 cps</li> <li>DS1—Between 50 and 3622 cps</li> </ul> </li> </ul> <p><b>Note</b> For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), the <i>guaranteedRate</i> must be the same as <i>maxrate</i>.</p> |
| <i>maxRate</i>        | <p>Specifies the maximum rate on a logical port in cells/second. For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), <i>maxrate</i> must be the same as <i>guaranteedRate</i>. See <i>guaranteedRate</i>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**Table 3-2 Parameters for Configuring ATM Ports Using the `addport` Command (continued)**

| Parameter            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>sctID</code>   | The ID of a service class template (SCT) for the port. The range is 0–255. The SCT file must exist on the PXM disk. See <code>cnfcdsct</code> .<br><br><b>Note</b> Currently, the system does not support certain parameters in the service class templates (SCTs). When applicable, these parameters are PCR, SCR, and ICR. To specify the parameters, use the <code>addcon</code> command, the <code>cnfcon</code> command, or Cisco WAN Manager.                                                                                                                                                                                                                                                                                                                             |
| <code>ifType</code>  | Specifies the port as one of the following types of interfaces: <ul style="list-style-type: none"> <li>• 1 = UNI (User-to-Network Interface)</li> <li>• 2 = NNI (Network-to-Network Interface)</li> <li>• 3 = VNNI (Virtual Network-to-Network Interface)</li> <li>• 4 = VUNI (Virtual User-to-Network Interface)</li> <li>• 5 = EVUNI (Enhanced Virtual User-to-Network Interface)</li> <li>• 6 = EVNNI (Enhanced Virtual Network-to-Network Interface)</li> </ul> EVNNI and EVUNI permit a range of VPIs for one interface, and this range of VPIs represents the virtual NNI or virtual UNI trunk. VNNI and VUNI allow only one VPI for one interface, and that VPI represents the virtual NNI or virtual UNI trunk. Multiple VNNIs and EVNNIs can coexist on the same line. |
| <code>-vpi</code>    | Virtual Path Identifier for a VNNI or VUNI interface: <ul style="list-style-type: none"> <li>• VNNI range: 1–4095</li> <li>• VUNI range: 1–255</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <code>-minvpi</code> | The minimum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> <li>• EVUNI range: 0–255</li> <li>• EVNNI range: 0–4095</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <code>-maxvpi</code> | The maximum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> <li>• EVUNI range: 0–255</li> <li>• EVNNI range: 0–4095</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

The following sample command adds an UNI port to a line:

```
M8850_NY.13.MPSM155 [ATM] .a > addport 20 1.2:1 1000 1000 0 1
```

**Step 5** To display a list of the ports configured on the card, enter the `dsports` command as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > dsports
```

This command displays all configured ports on the card. Port numbers are listed in the `ifNum` (interface number) column. If you want to view information on a particular port, note the number of that port.

```
M8850_NY.13.MPSM155 [ATM] .a > dsports
ifNum Line/ Admin Oper Guaranteed Maximum sctID ifType VPI MINVPI MAXVPI IMA
 Path State State Rate Rate Cnf/InUse (VNNI, (EVUNI, (EVUNI, GRP
 Path State State Rate Rate Cnf/InUse VUNI) EVNNI) EVNNI)

 10 N/A Up LowLayerDn 1000 1000 0/ 0 =Def NNI 0 0 0 1
 11 N/A Up LowLayerDn 1000 1000 0/ 0 =Def NNI 0 0 0 2
 20 1.2:1 Up LowLayerDn 1000 1000 0/ 0 =Def UNI 0 0 0 N/A
```

```
21 1.2:2 Up LowLayerDn 3622 3622 0/ 0 =Def UNI 0 0 0 N/A
```

**Step 6** To display the port configuration, enter the **dspport** command as follows:

```
MGX8850.10.MPSM-155 [ATM] .a > dspport <ifNum>
```

Replace *<ifNum>* with the number assigned to the port during configuration. The following example shows information for port 4.

```
M8850_NY.13.MPSM155 [ATM] .a > dspport 4
Interface Number : 4
Line/Path Number : 1.1.1 IMA Group Number : N/A
Admin State : Up Operational State : LowLayerDn
Guaranteed bandwidth(cells/sec): 1000 Number of partitions : 1
Maximum bandwidth(cells/sec): 1000 Number of SPVC : 0
ifType : NNI Number of SPVP : 0
VPI number (VNNI, VUNI) : 0 Number of SVC : 0
 : Number of Sig VC : 0
MIN VPI (EVNNI, EVUNI) : 0 MAX VPI (EVNNI, EVUNI): 0
SCT Id : 0 =Def
F4 to F5 Conversion : Disabled
```



**Tip**

To change the port configuration, enter the **cnfport** command, or enter the **delport** command to delete a port configuration. You can also activate and deactivate ports using the **uport** and **dnport** commands.

## Configuring Inverse Multiplexing over ATM

Inverse Multiplexing over ATM (IMA) is a protocol that combines multiple T1 or E1 interfaces into one high-speed IMA interface, called an IMA group.



**Note**

The MPSM-T3E3-155 and MPSM-16-T1E1 cards require a multilink license for IMA configuration. To view the feature licenses that are assigned to or are needed by the cards, enter the **dsplccd** command.

The IMA feature has the following capabilities and restrictions:

- The MPSM-T3E3-155 supports a maximum of 42 IMA groups with up to 16 links per group. IMA links on the MPSM-T3E3-155 are paths on a channelized line.
- The MPSM-16-T1E1 supports a maximum of 16 IMA groups with up to 8 links per group. IMA channels on the MPSM-16-T1E1 are individual lines, rather than paths. Therefore, the Line Interface Index is the IMA Link Interface Index for SNMP access.
- The MPSM-16-T1E1 requires that all links in an IMA group be within lines 1-8 or 9-16. For example, an IMA group with lines 7, 8, and 9 is *not* supported.
- The MPSM-16-T1E1 implements the IMA protocol using the network processor. The MPSM-T3E3-155 implements the IMA protocol using the IMA-84 device.
- The MPSM-T3E3-155 and MPSM-16-T1E1 cards support IMA Versions 1.0 and 1.1.

IMA is also supported on the following Cisco MGX 8850 and Cisco MGX 8830 cards:

- PXM1E-16-T1E1 (supports a maximum of 16 IMA groups in the bottom bay only)
- AUSM-8-T1/B (supports a maximum of 8 IMA groups)

- AUSM-8-E1/B (supports a maximum of 8 IMA groups)
- AXSM-32-T1E1-E (supports a maximum of 16 IMA groups in the top bay, and 16 groups in the bottom bay)



**Note** For information on PXM1E IMA, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.



**Note** For information on AUSM IMA, refer to the *Cisco ATM Services (AUSM/MPSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*.



**Note** For information on AXSM IMA, refer to the *Cisco ATM Services (AXSM) Configuration Guide and Command Reference for MGX Switches, Release 5.2*.

Configuring IMA is a 3-step process:

1. Create and configure an IMA group
2. Add IMA links to the IMA group
3. Add and configure an IMA port for the IMA group



**Note** Both ends of an IMA connection must support IMA, and the IMA configuration must match on both ends.

## Creating an IMA Group

To create an IMA group, use the following procedure:

**Step 1** Establish a configuration session with the active MPSM-T3E3-155 or MPSM-16-T1E1.

**Step 2** Enter the **addimagrp** command as follows to create a new IMA group:

```
M8830_CH.12.MPSM155 [ATM] .a > addimagrp <group> <version> <minLinks> <txImaId> <txFrameLen>
<txclkMode> <diffDelayMax>
```

[Table 3-3](#) describes the parameters for the **cnfimagr** command.

**Table 3-3** *addimagrp* Command Parameters

| Parameter      | Description                                                                                                                                                     |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>group</i>   | The IMA group number. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 1–42</li> <li>• MPSM-16-T1E1 range: 1–16</li> </ul>                         |
| <i>version</i> | The version number of ATM Forum IMA specification. <ul style="list-style-type: none"> <li>• <b>1</b> = Version 1.0</li> <li>• <b>2</b> = Version 1.1</li> </ul> |

Table 3-3 *addimagrp* Command Parameters

| Parameter           | Description                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>minLinks</i>     | The minimum number of links that must be operational before the IMA group is operational. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 1–16</li> <li>MPSM-16-T1E1 range: 1–8</li> </ul> For example, if you create an IMA group of 4 links and specify a minimum number of 3 links, then three of the four specified links must be operational before the IMA group can be used. |
| <i>txImaId</i>      | The IMA ID number transmitted in the IMA ID field of the ICP cell, in the range 0–255.                                                                                                                                                                                                                                                                                                          |
| <i>txFrameLen</i>   | The length of transmitted IMA frame in bytes. For IMA version 1.0, the <i>txImaFrameLength</i> value is 128. For Version 1.1, the <i>txImaFrameLength</i> value can be 32, 64, 128, or 256.                                                                                                                                                                                                     |
| <i>txclkMode</i>    | Specifies the near-end transmit clock mode. Enter a number to indicate the transmit clock mode as follows: <ul style="list-style-type: none"> <li>1 = CTC</li> <li>2 = ITC</li> </ul> <b>Note</b> Option 2 (ITC) is not supported in MPSM-T3E3-155 Release 5.                                                                                                                                   |
| <i>diffDelayMax</i> | The maximum differential delay in milliseconds. <ul style="list-style-type: none"> <li>T1 range: 1–275 ms</li> <li>E1 range: 1–220 ms</li> </ul>                                                                                                                                                                                                                                                |

In the following example, the user creates IMA group 1 running IMA version 1.0. The minimum number of links required for this group to operate is 3. The transmit IMA ID is 255, the transmit frame length is 128, the transmit clock mode is CTC, and the maximum differential delay is 100.

```
M8830_CH.12.MPSM155[ATM].a > addimagrp 1 1 3 255 128 1 100
```

**Step 3** To configure additional IMA group parameters, enter the **cnfimagr** command as follows:

```
M8830_CH.12.MPSM155[ATM].a > cnfimagr <-grp group> [-ver <version>] [-txm <minLinks>] [-txid <txImaId>] [-txfl <txFrameLen>] [-dd <diffDelayMax>] [-uptim groupUpTime] [-dntim <groupDownTime>] [-vfb <verFallback>] [-mode <autoRestart>] [-rxid <rxImaIdExpected>] [-cm <txclkMode>]
```



Table 3-4 describes the parameters for the **addimagrp** command.

**Table 3-4** *cnfimagrps Command Parameters*

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-grp</b>   | <p>Specifies the IMA group.</p> <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 1–42</li> <li>MPSM-16-T1E1 range: 1–16</li> </ul> <p><b>Note</b> Enter the <b>dspimagrps</b> command to see a list of all IMA groups on the current card.</p>                                                                                                                                                 |
| <b>-ver</b>   | <p>Version number of ATM Forum IMA specification.</p> <ul style="list-style-type: none"> <li>1 = Version 1.0</li> <li>2 = Version 1.1</li> </ul>                                                                                                                                                                                                                                                          |
| <b>-txm</b>   | <p>Minimum number of links that must be operational before the IMA group is operational.</p> <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 1–16</li> <li>MPSM-16-T1E1 range: 1–8</li> </ul> <p>For example, if you create an IMA group of 4 links and specify a minimum number of 3 links, then three of the four specified links must be operational before the IMA group can be used.</p> |
| <b>-txid</b>  | <p>IMA ID number transmitted in the IMA ID field of the ICP cell, in the range 0–255.</p>                                                                                                                                                                                                                                                                                                                 |
| <b>-txfl</b>  | <p>Length of transmitted IMA frame in bytes. For IMA version 1.0, the <i>txImaFrameLength</i> value is 128. For version 1.1, the <i>txImaFrameLength</i> value can be 32, 64, 128, or 256.</p>                                                                                                                                                                                                            |
| <b>-dd</b>    | <p>Maximum differential delay in milliseconds.</p> <ul style="list-style-type: none"> <li>T1 range: 1–275 ms</li> <li>E1 range: 1–220 ms</li> </ul>                                                                                                                                                                                                                                                       |
| <b>-uptim</b> | <p>Group uptime, in the range 0–400000 milliseconds. Default: 10000.</p>                                                                                                                                                                                                                                                                                                                                  |
| <b>-dntim</b> | <p>Group downtime, in the range 0–100000 milliseconds. Default: 2500.</p>                                                                                                                                                                                                                                                                                                                                 |
| <b>-vfb</b>   | <p>Enables or disables version fallback on the IMA group.</p> <ul style="list-style-type: none"> <li>1 = Enable version fallback</li> <li>2 = Disable version fallback</li> </ul> <p><b>Note</b> You must enable version fallback on the card level before you enable it for individual IMA groups. See <b>cnfimaparms -fallback</b>.</p>                                                                 |
| <b>-mode</b>  | <p>Configures IMA autorestart functionality for the current group.</p> <ul style="list-style-type: none"> <li>1 = Disable IMA auto-restart</li> <li>2 = Relearn IMA auto-restart</li> <li>3 = Resume a previous IMA auto-restart</li> </ul> <p><b>Note</b> You must enable auto-restart on the card level before you enable it for individual IMA groups. See <b>cnfimaparms -restart</b>.</p>            |

Table 3-4 *cnfimagrps* Command Parameters

| Parameter    | Description                                                                |
|--------------|----------------------------------------------------------------------------|
| <b>-rxid</b> | Identifies the expected received IMA ID, either -1 or in the range 1–255.  |
| <b>-cm</b>   | Sets the transmit clock mode.<br><b>Note</b> Applies to MPSM-16-T1E1 only. |

**Step 4** To verify that the IMA group is created, enter the **dspimagrps** command:

```
M8830_CH.12.MPSM155 [ATM] .a > dspimagrps
Ima Min Tx Rx Tx Diff NE-IMA FE-IMA IMA
Grp Lnks Frm Frm Clk Delay State State Ver
 Len Len Mode (ms)

 1 3 128 128 CTC 100 StartUp StartUp 1.0
```

## Adding an IMA Link to an IMA Group

After you have created and configured an IMA group, you can begin adding IMA links to the group.

To add an IMA link to an IMA group, perform the following steps:

**Step 1** Enter the **dspimagrps** command to see the available IMA groups, as shown in the following example:

```
M8850_NY.13.MPSM155 [ATM] .a > dspimagrps
Ima Min Tx Rx Tx Diff NE-IMA FE-IMA IMA
Grp Lnks Frm Frm Clk Delay State State Ver
 Len Len Mode (ms)

 1 1 128 128 CTC 150 StartUp StartUp 1.1
 2 1 128 128 CTC 150 StartUp StartUp 1.1
```

**Step 2** Bring up the MPSM-16-T1E1 line, or MPSM-T3E3-155 path that you want to add to the IMA group.

- MPSM-T3E3-155—Enter the **uppath** *[-path\_filter] <path\_num>* command, replacing *[-path\_filter]* with the type of path you want to bring up (for example, **-ds1**). Replace *<path\_num>* with the number of the path you want to bring up.
- MPSM-16-T1E1—Enter the **upln** *<bay.line>* command, replacing *<bay.line>* with the line number.



**Note** To view all lines or paths, enter the **dsplns** or **dsppaths -all** command, respectively.

**Step 3** Enter the **addimalnk** command as follows to add an link to an IMA group.

```
M8830_CH.12.MPSM155 [ATM] .a > addimalnk <link> <group>
```

Table 3-5 describes the parameters for the **addimalnk** command.

**Table 3-5** *addimalnk* Command Parameters

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>link</i>  | <p>Identifies the line or path to add to the IMA group:</p> <ul style="list-style-type: none"> <li>DS1/E1 or DS3/E3 line: <i>bay.line[:ds1/e1]</i></li> <li>DS3 payload: <i>bay.line.sts:ds1</i></li> <li>VT payload: <i>bay.line.sts:vtg.vt</i></li> <li>VT structured: <i>bay.line.sts:tug3.vtg.vt</i></li> </ul> <p>where: <i>bay</i> = 1, <i>line</i> = 1–3, <i>sts</i> = 0–3, <i>ds1</i> = 1–28, <i>tug3</i> = 1–3, <i>vtg</i> = 1–7, <i>vt</i> = 1–4 (VT15) or 1–3 (VT2)</p> <p><b>Note</b> The MPSM-16-T1E1 requires all links in an IMA Group be within lines 1-8 or 9-16. For example, an IMA Group with lines 7, 8, and 9 is not valid.</p> |
| <i>group</i> | <p>Specifies the IMA group number.</p> <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 1–42</li> <li>MPSM-16-T1E1 range: 1–16</li> </ul> <p><b>Note</b> Enter the <b>dspimagrps</b> command to see the all active IMA groups on the current card. You must be in the ATM service context to view or configure IMA groups.</p>                                                                                                                                                                                                                                                                                                             |

In the following example, the user adds the DS1 path 1.1.3:1.1 to IMA group 1.

```
M8850_NY.13.MPSM155 [ATM] .a > addimalnk 1.1.3:1.1 1
```

**Step 4** Enter the **cnfimalnk** command as follows to configure the IMA link you just added:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfimalnk -lnk <link> [-uplif <lifUpTime>]
[-dnlif <lifDnTime>] [-uplods <lodsUpTime>] [-dnlods <lodsDnTime>]
```

Table 3-6 describes the parameters for the **cnfimalnk** command.

**Table 3-6** *cnfimalnk* Command Parameters

| Parameter   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-lnk</b> | <p>The link (line or path) in the IMA group to configure:</p> <ul style="list-style-type: none"> <li>DS1/E1 or DS3/E3 line: <i>bay.line[:ds1/e1]</i></li> <li>DS3 payload: <i>bay.line.sts:ds1</i></li> <li>VT payload: <i>bay.line.sts:vtg.vt</i></li> <li>VT structured: <i>bay.line.sts:tug3.vtg.vt</i></li> </ul> <p>where: <i>bay</i> = 1, <i>line</i> = 1–3, <i>sts</i> = 0–3, <i>ds1</i> = 1–28, <i>tug3</i> = 1–3, <i>vtg</i> = 1–7, <i>vt</i> = 1–4 (VT15) or 1–3 (VT2)</p> <p><b>Note</b> The MPSM-16-T1E1 requires all links in an IMA group to be within the range 1–8 or 9–16. For example, an IMA group with lines 7, 8, and 9 is not valid.</p> <p><b>Note</b> Enter the <b>dsplns</b> or <b>dsppaths</b> command to see a list of all line or path numbers on the current card.</p> |

Table 3-6 *cnfimalnk Command Parameters (continued)*

| Parameter      | Description                                                                                                                                                                                                        |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-uplif</b>  | LIF integration uptime, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.                          |
| <b>-dnlif</b>  | LIF integration downtime, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.                        |
| <b>-uplods</b> | LODS integration uptime, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.   |
| <b>-dnlods</b> | LODS integration downtime, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group. |

In the following example, the user configures link 1.1.3:1.1 so that it has an LIF uptime of 25,000 milliseconds, an LIF downtime of 1000 milliseconds, an LODS integration uptime of 25,000 milliseconds, and an LODS integration downtime of 1000 milliseconds.

```
M8850_NY.13.MPSM155[ATM] .a > cnfimalnk -lnk 1.1.3:1.1 -uplif 25000 -dnlif 1000
-uplods 25000 -dnlods 1000
```

- Step 5** Enter the **dspimalnk** *<link/pathid>* command to verify the configuration of the new IMA link. Replace *<link/pathid>* with the number of the line or path to display.

In the following example, the user displays the IMA link 1.1.3:1.1.

```
M8850_NY.13.MPSM155[ATM] .a > dspimalnk 1.1.3:1.1
IMA Link Number : 1.1.3:1.1
IMA Link Group Number : 1
Link Rel Delay (msecs) : 0
Link NE Tx State : Unusable-Failed
Link NE Rx State : Not In Grp
Link FE Tx State : Not In Grp
Link FE Rx State : Not In Grp
Link NE Rx Failure Status : Link Fail
Link FE Rx Failure Status : No Failure
IMA Link Tx LID : 0
IMA Link Rx LID : 255
Link Rx Test Pattern : 255
Link Test Procedure Status : Disabled
Link LIF Integ UpTime : 25000
Link LIF Integ DownTime : 1000
Link LODS Integ UpTime : 25000
Link LODS Integ DownTime : 1000
```

## Adding an IMA Port

After you configure an IMA group, you must add a port to the group.

To add an IMA port to a group, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Obtain the group number on which you will add the port. To display a list of the IMA group numbers, enter the **dspimagrps** command.
- Step 3** Verify that the IMA port number you want to use is not already configured. To display a list of the ports configured, enter the **dspports** command as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > dspports
ifNum Line/ Admin Oper Guaranteed Maximum sctID ifType VPI MINVPI MAXVPI IMA
 Path State State Rate Rate Cnf/InUse (VNNI, (EVUNI, (EVUNI, GRP
 VUNI) EVNNI) EVNNI)

5 1.1.3:1.2 Up LowLayerDn 100 100 0/ 0 =Def NNI 0 0 0 N/A
6 1.1.3:1.3 Up LowLayerDn 100 100 0/ 0 =Def NNI 0 0 0 N/A
7 1.1.3:1.4 Up LowLayerDn 100 100 0/ 0 =Def NNI 0 0 0 N/A
```

This command displays all ports on the card in the ifNum (interface number) column. When you add a port, you must specify a port number that is unique on the card. For example, if port number 5 is assigned to path 1.1.3:1.2, you cannot use port 5 on any other line on that card.



**Note** Cisco MGX switches support one port per IMA group only.

- Step 4** To add an ATM port to a group, enter the **addmaport** command as follows:

```
mgx8830a.1.MPSM155 [ATM] .a > addmaport <ifNum> <group> <guaranteedRate> <maxRate> <sctID>
<ifType> [-vpi <vpi>] [-minvpi <minvpi>] [-maxvpi <maxvpi>]
```

Table 3-7 lists parameters for adding IMA ports.

**Table 3-7** *addmaport* Command Parameters

| Parameter             | Description                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i>          | Specifies an interface number (port number) for the port you are adding. <ul style="list-style-type: none"> <li>• MPSM-16-T1E1 range: 4–499</li> <li>• MPSM-T3E3-155 range: 4–1003</li> </ul> <p><b>Note</b> Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>                                                         |
| <i>group</i>          | Number of the IMA group to which you want to add an IMA port. <p><b>Note</b> Enter the <b>dspimagrps</b> command to see the all active IMA groups on the current card.</p>                                                                                                                                                                      |
| <i>guaranteedRate</i> | Guaranteed minimum bandwidth rate in cells per second. <p>Range for T1: 50 to N * (3622 * (M-1)/M * 2048/2049)</p> <p>Range for E1: 50 to N * (4528 * (M-1)/M * 2048/2049)</p> <p>N = Number of IMA links in the IMA group</p> <p>M = IMA group frame length</p> <p><b>Note</b> The guaranteed rate and max rate settings must be the same.</p> |

Table 3-7 *addmaport* Command Parameters (continued)

| Parameter      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>maxRate</i> | Maximum bandwidth rate for the IMA port in cells per second. See <i>guaranteedRate</i> .<br><b>Note</b> The guaranteed rate and max rate settings must be the same.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>sctID</i>   | ID number of the port SCT file on the PXM disk, in the range from 0–255.<br>Default:0.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>ifType</i>  | Specifies the port as one of the following types of interfaces: <ul style="list-style-type: none"> <li>• 1 = UNI (User-to-Network Interface)</li> <li>• 2 = NNI (Network-to-Network Interface)</li> <li>• 3 = VNNI (Virtual Network-to-Network Interface)</li> <li>• 4 = VUNI (Virtual User-to-Network Interface)</li> <li>• 5 = EVUNI (Enhanced Virtual User-to-Network Interface)</li> <li>• 6 = EVNNI (Enhanced Virtual Network-to-Network Interface)</li> </ul> EVNNI and EVUNI permit a range of VPIs for one interface, and this range of VPIs represents the virtual NNI or virtual UNI trunk. VNNI and VUNI allow only one VPI for a single interface, and that VPI represents the virtual NNI or virtual UNI trunk. Multiple VNNIs and EVNNIs can coexist on the same line. |
| <b>-vpi</b>    | Virtual Path Identifier for a VNNI or VUNI interface: <ul style="list-style-type: none"> <li>• VNNI range: 1–4095</li> <li>• VUNI range: 1–255</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>-minvpi</b> | The minimum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> <li>• EVUNI range: 0–255</li> <li>• EVNNI range: 0–4095</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-maxvpi</b> | The maximum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> <li>• EVUNI range: 0–255</li> <li>• EVNNI range: 0–4095</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

In the following example, the user adds IMA port 8 to IMA group 1. The port operates as an NNI and uses the default SCT, with a guaranteed minimum and maximum bandwidth rate of 100 cps.

```
M8850_NY.13.MPSM155 [ATM] .a > addimaport 8 1 100 100 0 2
```

**Step 5** To display a list of all ports configured on the card, enter the **dsports** command. Port numbers are listed in the *ifNum* (interface number) column. If you want to view information on a particular port, enter the **dsport** *<ifNum>* command, replacing *ifNum* with the desired port number.

```
M8850_NY.13.MPSM155 [ATM] .a > dsports
```

| ifNum | Line/<br>Path | Admin<br>State | Oper<br>State | Guaranteed<br>Rate | Maximum<br>Rate | sctID<br>Cnf/InUse | ifType | VPI<br>(VNNI,<br>VUNI) | MINVPI<br>(EVUNI,<br>EVNNI) | MAXVPI<br>(EVUNI,<br>EVNNI) | IMA<br>GRP |
|-------|---------------|----------------|---------------|--------------------|-----------------|--------------------|--------|------------------------|-----------------------------|-----------------------------|------------|
| 5     | 1.1.3:1.2     | Up             | LowLayerDn    | 100                | 100             | 0/ 0 =Def          | NNI    | 0                      | 0                           | 0                           | N/A        |
| 6     | 1.1.3:1.3     | Up             | LowLayerDn    | 100                | 100             | 0/ 0 =Def          | NNI    | 0                      | 0                           | 0                           | N/A        |
| 7     | 1.1.3:1.4     | Up             | LowLayerDn    | 100                | 100             | 0/ 0 =Def          | NNI    | 0                      | 0                           | 0                           | N/A        |
| 8     | N/A           | Up             | LowLayerDn    | 100                | 100             | 0/ 0 =Def          | NNI    | 0                      | 0                           | 0                           | 1          |

## Partitioning Port Resources on the PNNI Controller

After you add a line or trunk port, you must define how the port resources are used by the PNNI controller. You can assign all resources to the PNNI controller, or you can assign some of the port resources to the PNNI controller, including:

- Range of VPI values
- Range of VCI values
- Guaranteed percent of bandwidth for ingress and egress directions
- Minimum and maximum number of connections



**Note** Use the partition definition to control how available connections are distributed within the switch. Each switch, card, and port supports a maximum number of connections. Although you can enable the maximum number of connections on all ports, 2 or 3 very busy ports could use all available connections and disable communication on all other ports.

The port resources are defined as a group in a controller partition, which is dedicated to one port controller. You must define one controller partition for each controller type you want to support, and you must configure one resource partition for each port that uses a controller. [Figure 3-2](#) presents a simplified view of the relationship between the port controller, controller partition, and resource partitions.

**Figure 3-2** Relationship of Port Controller, Controller Partition, and Resource Partitions

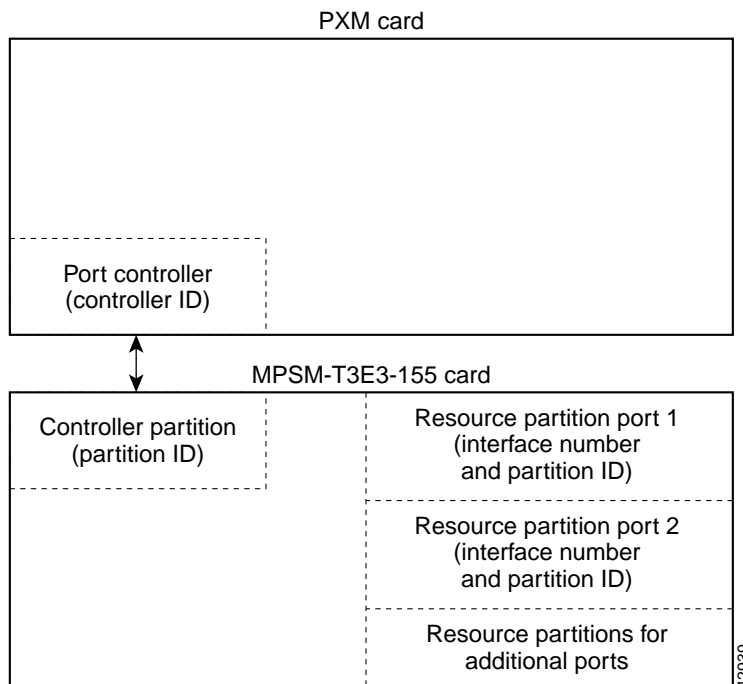


Figure 3-2 shows that one controller partition connects to the port controller and to the resource partitions. When you add a port, a partition is automatically added. You can change the resource partition configuration using the **cnfpart** command.

To create additional resource partitions for a port, use the **addpart** command. It is important that the same controller partition, and therefore the same partition ID, be used for all resource partitions of the same type on the same MPSM-T3E3-155 card. For example, the controller is identified by the controller ID and the controller partition is identified by the partition ID. The resource partitions are identified by specifying the partition ID in combination with the port ID (interface number).

## Important VPI/VCI Range Issues

When you configure a partition, be sure to configure the VPI/VCI ranges to meet your usage requirements. It is important that you do not configure the entire VPI/VCI range for one partition. The ability to seamlessly add new partitions in the future depends on configuring only the necessary ranges for each partition.

We recommend the following ranges for one partition:

- For a VPI on a UNI port where the available range is 0 to 255, the recommended configured range is 0 to 140.
- For a VPI on a PNNI port where the range is 0 to 4096, the recommended configured range is 0 to 2500 or about 60 percent.

To configure a resource partition for a port, use the following procedure.

**Step 1** Establish a configuration session using a username with Group1 privileges or higher.



**Note** Before you create a resource partition for a port, you must add the PNNI controller and add a port. For instructions on adding the controller, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*. For instructions on adding ports, see the [“Adding ATM Ports” section on page 3-18](#).

**Step 2** Determine the port number whose resource partition you want to configure. To display a list of the ports, enter the **dsports** command:

```
M8850_NY.13.MPSM155 [ATM] .a > dsports
```

| ifNum | Line/<br>Path | Admin<br>State | Oper<br>State | Guaranteed<br>Rate | Maximum<br>Rate | sctID<br>Cnf/InUse | ifType   | VPI<br>(VNNI,<br>VUNI) | MINVPI<br>(EVUNI,<br>EVNNI) | MAXVPI<br>(EVUNI,<br>EVNNI) | IMA<br>GRP |
|-------|---------------|----------------|---------------|--------------------|-----------------|--------------------|----------|------------------------|-----------------------------|-----------------------------|------------|
| 10    | N/A           | Up             | LowLayerDn    | 1000               | 1000            | 0/ 0               | =Def NNI | 0                      | 0                           | 0                           | 1          |
| 11    | N/A           | Up             | LowLayerDn    | 1000               | 1000            | 0/ 0               | =Def NNI | 0                      | 0                           | 0                           | 2          |
| 20    | 1.2:1         | Up             | LowLayerDn    | 1000               | 1000            | 0/ 0               | =Def UNI | 0                      | 0                           | 0                           | N/A        |
| 21    | 1.2:2         | Up             | LowLayerDn    | 3622               | 3622            | 0/ 0               | =Def UNI | 0                      | 0                           | 0                           | N/A        |

This command displays all ports on the card in the ifNum (interface number) column.

**Step 3** To configure a resource partition, enter the **cnfpart** command as shown in the following example:

```
M8850_NY.13.MPSM155 [ATM] .a > cnfpart -if <if> -id <partitionID> -emin <egrMinBw>
-emax <egrMaxBw> -imin <ingMinBw> -imax <ingMaxBw> -vpmIn <minVpi> -vpmMax <maxVpi>
-vcmin <minVci> -vcmax <maxVci> -mincon <min connections> -maxcon <max connections>
```



Table 3-8 lists the parameters for configuring resource partitions.

**Table 3-8 Parameters for Configuring Resource Partitions with the `cnfpart` Command**

| Parameter      | Description                                                                                                                                                                                                                                                                              |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-if</b>     | Interface number (partition number) of the partition to configure. <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 4–499</li> <li>MPSM-T3E3-155 range: 4–1003</li> </ul> <b>Note</b> Use the <b>dspparts</b> command in the ATM CLI context to see all active ATM partitions. |
| <b>-id</b>     | Number that identifies the partition, in the range 1–20.                                                                                                                                                                                                                                 |
| <b>-emin</b>   | Guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.                                                        |
| <b>-emax</b>   | Maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001 percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.                                                              |
| <b>-imin</b>   | Guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)                                                                                                       |
| <b>-imax</b>   | Maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.                                                    |
| <b>-vpmin</b>  | Minimum VPI for the partition: <ul style="list-style-type: none"> <li>UNI range 0–255</li> <li>NNI or VNNI range: 0–4095</li> </ul>                                                                                                                                                      |
| <b>-vpmax</b>  | Maximum VPI for the partition <ul style="list-style-type: none"> <li>UNI range 0–255</li> <li>NNI or VNNI range: 0–4095</li> </ul> The <i>max_vpi</i> cannot be less than the <i>min_vpi</i> .                                                                                           |
| <b>-vcmin</b>  | Minimum VCI, in the range from 1–65535                                                                                                                                                                                                                                                   |
| <b>-vcmax</b>  | Maximum VCI, in the range from 1–65535<br>The <i>max_vci</i> cannot be less than the <i>min_vci</i> .                                                                                                                                                                                    |
| <b>-mincon</b> | Guaranteed number of connections. Value: 0 only                                                                                                                                                                                                                                          |
| <b>-maxcon</b> | Maximum number of connections, in the range 10–2000.                                                                                                                                                                                                                                     |

**Step 4** To display a list showing the resource partition you created, enter the **dspparts** command:

```
M8850_NY.13.MPSM155 [ATM] .a > dspparts
if part Ctlr egr egr ingr ingr min max min max min max
Num ID ID GuarBw MaxBw GuarBw MaxBw vpi vpi vci vci conn conn
 (.0001%) (.0001%) (.0001%) (.0001%)

 4 4 2 100000 100000 100000 100000 10 110 100 2000 100 500
```

- Step 5** To display the configuration of a specific resource partition, enter the **dsppart** *<ifNum>* *<partId>* command. Replace *<ifNum>* with the number of interface (or port) whose resource partition you want to display, and replace *<partId>* with the partition ID number. (See [Table 3-8](#) for a description of the *<ifNum>* and *<partId>* parameters.)

```
M8850_NY.13.MPSM155[ATM].a > dsppart <ifNum> <partId>
```

The following example shows the report provided by the **dsppart** command.

```
MGX8850.3.MPSM155[ATM].a > dsppart 4 4
Interface Number : 4
Partition Id : 4 Number of SPVC: 0
Controller Id : 2 Number of SPVP: 0
egr Guaranteed bw(.0001percent): 100000 Number of SVC : 0
egr Maximum bw(.0001percent) : 100000
ing Guaranteed bw(.0001percent): 100000
ing Maximum bw(.0001percent) : 100000
min vpi : 10
max vpi : 110
min vci : 100
max vci : 2000
guaranteed connections : 100
maximum connections : 500
```

## Selecting the Port Signaling Protocol

After you bring up a port, you need to set the signaling protocol to UNI or NNI. Use the following procedure to configure the port signaling protocol for a port.

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.

- Step 2** Enter the **dsppnports** command to display a list of the ports you can configure:

```
MGX8850.7.PXM.a > dsppnports
```

- Step 3** Enter the **dnnpport** command to bring down the port you want to configure:

```
MGX8850.7.PXM.a > dnnpport <portid>
```

A port is automatically brought up when you add it. Before you can change the port signaling protocol, you must bring down the port. Replace *<portid>* using the format *slot[:bay].line[:ifNum]*.

- Step 4** To confirm the port is down, enter the **dsppnports** command. The following example shows the report that appears.

```
MGX8850.7.PXM.a > dsppnports
Summary of total connections
(p2p=point to point,p2mp=point to multipoint,SpvcD=DAX spvc,SpvcR=Routed spvc)
Type #Svcc: #Svpc: #SpvcD: #SpvpD: #SpvcR: #SpvpR: #Total:
p2p: 0 0 0 0 0 0 0
p2mp: 0 0 0 0 0 0 0
 Total=0

Summary of total configured SPVC endpoints
Type #SpvcCfg: #SpvpCfg:
p2p: 1 0
p2mp: 0 0

Per-port status summary
```

| PortId | IF status | Admin status | ILMI state | #Conns |
|--------|-----------|--------------|------------|--------|
| 7.35   | up        | up           | Undefined  | 0      |
| 7.36   | up        | up           | Undefined  | 0      |
| 7.37   | up        | up           | Undefined  | 0      |
| 7.38   | up        | up           | Undefined  | 0      |

Type <CR> to continue, Q<CR> to stop:

|         |      |      |         |   |
|---------|------|------|---------|---|
| 1:1.1:1 | down | down | Disable | 0 |
| 2:2.2:1 | up   | up   | Disable | 0 |

**Step 5** To select the port signaling protocol, enter the **cnfpnportsig** command as follows:

```
M8850_NY.7.PXM.a > cnfpnportsig <portid> [-univer {uni30|uni31|uni40|none|self}] [-nniver {iisp30|iisp31|pnni10|enni|aini}] [-unitype {public|private}] [-addrplan {both|aes|e164}] [-side {user|network}] [-vpi <vpi>] [-sigvci <signalling-vci>] [-rccvci <routing-vci>] [-cntlvc <ip>] [-passalongcap {enable|disable}] [-hopcntgen {enable|disable}] [-vpivcialloc {enable|disable}] [-svcroutingpri <svcroutingPriority>]
```

The only required parameter for this command is the *<portid>* parameter, but the command serves no purpose if you do not enter at least one option with it. If you include some options with the command and omit others, the omitted option remains set to the last configured value.



**Tip**

With some commands, you can refer to a port using only the interface number, while other commands require you to enter a complete port identification number, which includes the slot, bay, line, and interface numbers. When entering commands at the PXM switch prompt, you must always specify the complete port identification number. When entering commands at the switch prompt, you can enter only the interface number, because the interface number is unique on the card and identifies the slot, bay, and line for the port.



**Note**

When the port is added using the **addport** command, the selection of UNI or NNI occurs. You cannot use the **-univer** and **-nniver** options to change the port type.

The following example illustrates how to configure an NNI port to use PNNI Version 1.0 signaling.

```
M8850_NY.7.PXM.a > cnfpnportsig 1:1.1:1 -nniver pnni10
```

**Step 6** Enter the **cnfoamsegep** command to define the local routing switch feeder port as a non-OAM segment endpoint:

```
M8850_NY.7.PXM.a > cnfoamsegep <portid>
```

Replace *<portid>* using the format *slot: bay: line: ifNum*.



**Note**

This step is required to enable testing using the **tstdelay** command.

**Step 7** To bring up the port you just configured, enter the **upnport** command:

```
M8850_NY.7.PXM.a > upnport <portid>
```

Replace `<portid>` using the format `slot:bay.line:ifNum`.



**Note** The *bay* is always 1.

**Step 8** To verify the status of the port, enter the **dsppnports** command.

**Step 9** To display the configuration of the PNNI port, enter the **dsppnport** command as follows:

```
M8850_NY.7.PXM.a > dsppnport <portid>
```

Replace `<portid>` using the format `slot:bay.line:ifNum`. The following example shows the report for this command.

```
M8850_NY.7.PXM.a > dsppnport 1:1.1:1
Port: 1:1.1:1 Logical Id: 16848897
IF status: up Admin Status: up
UCSM: enable
Auto-config: enable Adrs-reg: enable
IF-side: network IF-type: nni
UniType: private version: pnni10
Input filter: 0 Output filter: 0
minSvccVpi: 0 maxSvccVpi: 4095
minSvccVci: 35 maxSvccVci: 65535
minSvpcVpi: 1 maxSvpcVpi: 4095
#SpvcCfg: #SpvcActive: #SpvpCfg: #SpvpActive:
p2p : 0 0 0 0
p2mp: 0 0 0 0
#Svcc: #Svpc: Total:
p2p : 0 0 0
p2mp: 0 0 0
Total : 0
```

## Configuring ILMI on a Port

Interim Local Management Interface (ILMI) is a feature you can activate on any ATM port. Activate ILMI on a port to perform any of the following tasks:

- Use ILMI automatic configuration, which negotiates ATM communication parameters
- Use ILMI address registration, which negotiates an ATM address for an attached CPE using an ILMI prefix assigned to a port
- Enable CWM autodiscovery on a link, which allows CWM to search for and discover Cisco switches that it can manage
- Create a PNNI link to a BXM card on a Cisco BPX

ILMI is enabled by default on all ports, but remains in a down state until ILMI is started.

To start ILMI on a port, you can *either*:

- Configure and start ILMI using one command—Enter the **cnfilmi** command, or
- Start ILMI using the default values—Use the **upilmi** command

The sections that follow describe how to perform the following tasks:

- [Configuring ILMI Traps and Signaling, page 3-37](#)
- [Configuring ILMI Automatic Configuration, page 3-38](#)
- [Configuring ILMI Dynamic Addressing, page 3-40](#)
- [Starting ILMI Using Default or Existing Values, page 3-42](#)

## Configuring ILMI Traps and Signaling

The default ILMI configuration uses standard ILMI signaling VPI and VCI, sets three ILMI signaling timers, and enables the distribution of ILMI management messages (traps) to SNMP managers such as CWM. If the defaults are acceptable, you can start ILMI on the port using the **upilmi** command. To change the defaults and start ILMI, use the following procedure.



### Note

When ILMI is configured and started at one end of a link, it must be configured and started at the other end of the link before the link will operate properly.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** To preview the current ILMI configuration for a port, enter the **dspilmis** command. The following example shows the **dspilmis** command report.

```
M8850_NY.13.MPSM155 [ATM] .a > dspilmis
 Sig. rsrc Ilmi Sig Sig Ilmi S:Keepalive T:conPoll K:conPoll
 Port Part State Vpi Vci Trap Interval Interval InactiveFactor
 ---- --- -
 11 1 On 0 16 On 1 5 4
 12 1 Off 0 16 On 1 5 4
 13 1 Off 0 16 On 1 5 4
```

The example above shows that ILMI is enabled on port 11 (ILMI State = On) and is disabled on ports 12 and 13 (ILMI State = Off). All other ILMI parameters are set to the default values.



### Note

The ILMI state displayed by the **dspilmis** command is the configuration state, not the operational state. To view the operational state, enter the **dsppnports** or **dsppnilmi** commands.

- Step 3** Enter the **cnfilmi** command as follows to configure ILMI on a specific port.

```
MGX8850.10.MPSM-155 [ATM] .a > cnfilmi -if <ifNum> -id <partitionID> -ilmi <ilmiEnable>
-vpi <vpi> -vci <vci> -trap <ilmiTrapEnable> -s <keepAliveInt> -t <pollingIntervalT491>
-k <pollInctFact>
```

Table 3-9 lists the parameters for configuring resource partitions.

**Table 3-9** Parameters for Configuring ILMI with the *cnfilmi* Command

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                    |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-if</b>   | Specifies the interface number (port number) for which you want to configure ILMI. <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 4–499</li> <li>MPSM-T3E3-155 range: 4–1003</li> </ul> <b>Note</b> To see the interface number and partition id for all active ATM ports, use the <b>dspparts</b> command in the ATM CLI context. |
| <b>-id</b>   | Specifies the partition ID, in the range 1–20. (See description of <b>addpart</b> or <b>addrscprtn</b> for information regarding resource partition ID.)                                                                                                                                                                                       |
| <b>-ilmi</b> | Enable or disable ILMI. <ul style="list-style-type: none"> <li>1 = enable</li> <li>2 = disable</li> </ul>                                                                                                                                                                                                                                      |
| <b>-vpi</b>  | VPI for the ILMI signaling connection, in the range 0–255.                                                                                                                                                                                                                                                                                     |
| <b>-vci</b>  | VPI for the ILMI signaling connection, in the range 0–65535.                                                                                                                                                                                                                                                                                   |
| <b>-trap</b> | Enable or disable ILMI trap. <ul style="list-style-type: none"> <li>1 = enable</li> <li>2 = disable</li> </ul>                                                                                                                                                                                                                                 |
| <b>-s</b>    | Keepalive interval, in the range 1–16 seconds.                                                                                                                                                                                                                                                                                                 |
| <b>-t</b>    | Polling interval timer value for T491, in the range 0–255 seconds. <b>Note</b> To disable polling on the specified interface, enter 0.                                                                                                                                                                                                         |
| <b>-k</b>    | Polling inactive factor K, in the range 0–255.                                                                                                                                                                                                                                                                                                 |

In the following example, the user enables ILMI on port 12.

```
M8830_CH.12.MPSM155 [ATM] .a > cnfilmi -if 12 -id 1 -ilmi 1
```

**Step 4** To confirm your configuration changes, enter the **dspilmi** command.

## Configuring ILMI Automatic Configuration

Using the automatic configuration feature of ILMI Version 4.0, two devices that share a link can share their configurations and negotiate a common set of communication parameters. For example, if two network devices share a link and are configured for different maximum VCIs on a partition, the automatic configuration feature can determine and select the highest VCI supported by both nodes. To use ILMI automatic configuration, the devices at each end of the link must support the ILMI 4.0 feature.



### Note

If the ILMI automatic configuration feature is enabled at one end and disabled at the other end, a link between two nodes does not operate correctly.

To enable or disable automatic configuration on a port, use the following procedure.

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.
- Step 2** To display the automatic configuration status of a port, enter the **dsppnport** *<portid>* command at the PXM card. Replace *<portid>* with the number that identifies the port whose automatic configuration status you want to display, in the format *slot.port*.

In the following example, the user displays the automatic configuration status of port 1 on the card in slot 12:

```
M8830_CH.1.PXM.a > dsppnport 12.5

Port: 12.5 Logical ID: 17569797
IF status: down Admin Status: up
VSVD Internal Loop: unspecified
VSVD External Loop: unspecified
UCSM: enable SVC Routing Pri: 8
Auto-config: enable Addr-reg: enable
IF-side: network IF-type: uni
UniType: private Version: none
PassAlongCapab: n/a
Input filter: 0 Output filter: 0
minSvccVpi: 0 maxSvccVpi: 255
minSvccVci: 35 maxSvccVci: 65535
minSvpcVpi: 1 maxSvpcVpi: 4095

P2P Details:
(P=Configured Persistent Pep, NP=Non-Persistent Pep, Act=Active)
#Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
 1 0 0 0 0 0
#Svcc: #Svpc: #Ctrl: Total:
 0 0 0 0

P2MP Details:
Type <CR> to continue, Q<CR> to stop:
DSPPNPORT (P=Persistent, NP=Non-Persistent, Pa = Party, Act=Active)
Type #Root: #Leaf: #Party:
svcc: 0 0 0
svpc: 0 0 0
#Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
 0 0 0 0 0 0
#SpvcPa-P: #SpvcPaAct: #SpvpPa-P: #SpvpPaAct:
 0 0 0 0
```

The Auto-config field shows whether the automatic configuration feature is enabled or disabled. In this example, automatic configuration is enabled.

- Step 3** To enable or disable automatic configuration, bring down the port to be configured with the **dnnpnport** *<portid>* command, as shown in the following example. Replace *<portid>* with the ID of the port on which you will enable or disable ILMI, in the format *slot.ifnum*.

```
MGX8850.7.PXM.a > dnnpnport 12.5
```

- Step 4** Enter the **cnfautocnf** command as follows to enable or disable the automatic configuration feature on a port:

```
MGX8850.7.PXM.a > cnfautocnf <portid> <yes | no>
```

Replace *portid* with the port address using the format *slot.ifnum*.

Enter **yes** to enable automatic configuration or enter **no** to disable automatic configuration.




---

**Note** The default is **yes**.

---

In the following example, the user disables the autoconfig feature on port 5 on the card in slot 12:

```
MGX8850.7.PXM.a > cnfautocnf 12.5 no
```

- Step 5** To bring up the port you configured in Step 4, enter the **upnpport** *<portid>* command as shown in the following example. Replace *<portid>* with the ID of the port you want to activate.

```
MGX8850.7.PXM.a > upnpport 12.5
```

- Step 6** To verify that the automatic configuration feature is enabled or disabled as specified, enter the **dsppnport** *<portid>* command. Replace *<portid>* with the ID of the port you want to verify.
- 

## Configuring ILMI Dynamic Addressing

Dynamic ATM addressing is enabled by default on all ports. After ILMI is started, ILMI can negotiate ATM addresses for CPE connected to the port. To determine the ATM address for the CPE, the switch uses a 13-byte ILMI prefix that is assigned to the port, a 6-byte end system ID, and a 1-byte selector byte. The end system ID and selector byte are defined on the end system. Depending on the end system configuration, the end system ID may correspond with the interface MAC address. For dynamic addressing to work, the remote device must support it. ILMI Versions 3.x and 4.0 support dynamic address registration.

The default ILMI prefix matches the PNNI node prefix and the SPVC prefix, both of which are described in the *Cisco MGX and SES PNNI Network Planning Guide*. If you change the:

- PNNI node prefix—The SPVC prefix and the ILMI prefix remain unchanged.
- SPVC prefix—The ILMI prefix changes with it, as long as no ILMI prefix is assigned directly to the port.

To eliminate the possibility of having a future SPVC prefix change affect dynamic addressing on a port, assign one or more ILMI prefixes to the port.




---

**Note** The Cisco MGX 8850 and Cisco MGX 8830 switches support up to 255 ILMI prefixes per MPSM-T3E3-155 card, and these prefixes can be assigned to one port or distributed among the ports.

---

To enable or disable dynamic addressing or assign an ILMI address prefix to a port, perform the following steps.

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.
- Step 2** To display the dynamic addressing status of a port, enter the **dsppnport** *<portid>* command as shown in the following example. Replace *<portid>* with the ID of the port you want to display.

```
M8830_CH.1.PXM.a > dsppnport 12.5
Port: 12.5 Logical ID: 17569797
IF status: down Admin Status: up
VSVD Internal Loop: unspecified
VSVD External Loop: unspecified
UCSM: enable SVC Routing Pri: 8
Auto-config: enable Addr-reg: enable
```



```

IF-side: network IF-type: uni
UniType: private Version: none
PassAlongCapab: n/a
Input filter: 0 Output filter: 0
minSvccVpi: 0 maxSvccVpi: 255
minSvccVci: 35 maxSvccVci: 65535
minSvpcVpi: 1 maxSvpcVpi: 4095

```

## P2P Details:

```

(P=Configured Persistent Pep, NP=Non-Persistent Pep, Act=Active)
#Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
1 0 0 0 0 0
#Svcc: #Svpc: #Ctrl: Total:
0 0 0 0

```

## P2MP Details:

```

DSPPNPORT (P=Persistent, NP=Non-Persistent, Pa = Party, Act=Active)
Type #Root: #Leaf: #Party:
svcc: 0 0 0
svpc: 0 0 0
#Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
0 0 0 0 0 0
#SpvcPa-P: #SpvcPaAct: #SpvpPa-P: #SpvpPaAct:
0 0 0 0

```

The `Addr-reg` field shows whether the dynamic addressing feature is enabled or disabled.

- Step 3** To view the ILMI prefixes assigned to a port, enter the **dspprfx** command as follows:

```
MGX8850.7.PXM.a > dspprfx <portid>
```

Replace `<portid>` with the port address using the format `slot.ifnum`. For example:

```
MGX8850.7.PXM.a > dspprfx 12.5
```

```
INFO: No Prefix registered
```

In the example above, no ILMI prefixes are assigned to the port, so the port uses the prefix configured for the SPVC prefix.

- Step 4** To change the dynamic addressing configuration, bring down the port to be configured using the **dnpport** `<portid>` command. Replace `<portid>` with the ID of the port you want to bring down, in the format `slot.ifNum`. For example:

```
MGX8850.7.PXM.a > dnpport 12.5
```

- Step 5** To enable or disable dynamic address registration, enter the **cnfaddrreg** command as follows:

```
MGX8850.7.PXM.a > cnfaddrreg <portid> <yes | no>
```

Enter **yes** to enable dynamic address configuration or enter **no** to disable it. The default is **yes**.

- Step 6** To define an ATM prefix for a port, enter the **addprfx** command as follows:

```
MGX8850.7.PXM.a > addprfx <portid> <atm-prefix>
```

Replace `<portid>` with the ID of the port on which you are defining an ATM prefix, using the format `slot.ifNum`.

Replace `<atm-prefix>` with the 13-byte ATM address prefix that you want the dynamically assigned address to use. Specify the address prefix using 26 hexadecimal digits. The range for each digit is 0 through F (0 through 9, A, B, C, D, E, and F).



**Note** The address prefix you choose should conform to the address plan for your network. For more information on address planning, refer to the *Cisco MGX and SES PNNI Network Planning Guide*.



**Tip** Each hexadecimal digit represents 1 nibble (four bits), and each pair of hexadecimal digits represents a byte. There are 13 pairs of hexadecimal digits in the prefix, or 26 total digits.

**Step 7** To bring up the port you configured, enter the **upnport** *<portid>* command as shown in the following example. Replace *<portid>* with the ID of the port you want to bring up.

```
MGX8850.7.PXM.a > upnport 12.5
```

**Step 8** To verify the proper ATM prefix configuration for a port, enter the **dspprfx** *<portid>* command. Replace *<portid>* with the ID of the port you want to verify, in the format *slot.ifNum*.

**Step 9** To see a dynamically assigned address, enter the **dspilmiaddr** *<port>* command. Replace *<portid>* with the ID of the port whose ILMI address you want to display, in the format *slot.ifNum*.

## Starting ILMI Using Default or Existing Values

The **upilmi** command starts ILMI on a port with the existing ILMI configuration, which is the default configuration if ILMI was not previously configured for that port. Although ILMI starts automatically when you configure it with the **cnfilmi** command, you might have to bring down ILMI with the **dnilmi** command to make a configuration change such as adding an ILMI prefix. To start or restart ILMI with the **upilmi** command, use the following procedure.

**Step 1** Establish a configuration session using a username with Group1 privileges or higher.

**Step 2** If you do not know the interface number and partition ID for the port on which you are starting ILMI, enter the **dspparts** command as shown in the following example.

```
MM8850_NY.13.MPSM155 [ATM] .a > dspparts
if part Ctlr egr egr ingr ingr min max min max min max
Num ID ID GuarBw MaxBw GuarBw MaxBw vpi vpi vci vci conn conn
 (.0001%) (.0001%) (.0001%) (.0001%)

 4 4 2 100000 100000 100000 100000 10 110 100 2000 100 500
```



**Tip** To see the relationship between interface numbers and lines, enter the **dspparts** command.

**Step 3** To start ILMI on a port, enter the **upilmi** command as follows.

```
MGX8850.10.MPSM-155 [ATM] .a > upilmi <ifNum> <partId>
```

Replace *<ifNum>* with the interface number for the port, and replace *<partId>* with the partition number assigned to the port. For example:

```
MGX8850.10.MPSM-155 [ATM] .a > upilmi 4 1
```

**Step 4** Enter the **dspilmi** command to display the ILMI status of all of the ports. For example:

```
MGX8850.1.MPSM-155 [ATM] .a > dspilmi
```

```

Sig. rsrc Ilmi Sig Sig Ilmi S:Keepalive T:conPoll K:conPoll
Port Part State Vpi Vci Trap Interval Interval InactiveFactor

4 1 On 0 16 On 1 5 4

```

The ILMI State column displays the configured state for ILMI, which is On if ILMI is enabled and Off if ILMI is disabled (use **dsppnports** or **dsppnilmi** command on the PXM to see the operational state).

## Provisioning and Managing SPVCs and SPVPs

Before you can add an SPVC, the following tasks must have been completed:

1. The switch must have a network controller (see the **addcontroller** command in *Cisco MGX 8800/8900 Series Command Reference, Release 5.2*).
2. A physical line must be active. Use the **upln** command or the Cisco WAN Manager application.
3. At least one logical port must exist on the active physical line. To create the port, use the **addport** command or the Cisco WAN Manager application. If necessary, modify the port through **cnfport**.
4. At least one resource partition must exist on the logical port. A partition is automatically added when you add a port. The resource partition should be associated with the controller added in Step 1. The sections that follows describe the following tasks:
  - [Configuring Point-to-Point Connections](#)
  - [Defining Destination Addresses for Static Links](#)

### Configuring Point-to-Point Connections

Point-to-point SPVCs and SPVPs are created between two ATM CPE, so you must configure them at each endpoint. The master endpoint is responsible for routing and rerouting. The slave endpoint is responsible for responding to requests from the master during connection setup and rerouting. Both endpoints are configured on the switch to which the ATM CPE connects. These endpoints can be on the same switch or on different switches.

The master and slave relationships exist for each SPVC or SPVP, and apply only to that SPVC or SPVP connection. For example, you can have one SPVC with a master on Node A and a slave on Node B, and then create another with the Master on Node B and the slave on Node A. It is good practice to distribute the master side of SPVCs and SPVPs among the network nodes so that route processing is distributed.

Cisco MGX switches support two types of SPVCs/SPVPs:

- Single-ended SPVCs—Defined at the master endpoint and do not require configuration of a slave endpoint. The primary benefit of single-ended SPVCs is that they are easier to configure. After configuration, the master endpoint configures and brings up the slave endpoint. For this feature to work correctly, the destination endpoint must support single-ended SPVCs.
- Double-ended SPVCs (and SPVPs)—Require separate configuration of the master and slave endpoints. The slave endpoint must be configured first, because this step generates a slave address that must be entered during master endpoint configuration.



**Note** SPVC/SPVP termination is not supported on feeder ports and legacy service modules; they terminate on the feeder trunk only.

The following sections describe how to configure slave and master SPVC and SPVP connections.



**Tip**

The configuration of SPVCs and SPVPs is very similar. The difference is that SPVPs are assigned VCI 0 and do not use nonzero VCI numbers. An SPVC requires a nonzero VCI.

## Configuring the Slave Side of SPVCs and SPVPs

To configure the slave side of an SPVC or SPVP, use the following procedure.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Define the slave side of the SPVC or SPVP by entering the **addcon** command as follows:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > addcon <ifNum> <vpi> <vci> <service type> <mastership>
[-casttype <value>] [-slave <NSAP.vpi.vci>]
[-lpcr <local PCR>] [-rpcr <remote PCR>]
[-lscr <local SCR>] [-rscr <remote SCR>]
[-lmbs <local MBS>] [-rmbs <remote MBS>]
[-lcdv <local maxCDV>] [-rcdv <remote maxCDV>]
[-lctd <local maxCTD>] [-rctd <remote maxCTD>]
[-lmcr <local MCR>] [-rmcr <remote MCR>]
[-cdvt <local CDVT>] [-cc <OAM CC Cnfg>] [-stat <Stats Cnfg>]
[-frame <frame discard>] [-mc <maximum cost>]
[-lputil <local util>] [-rputil <remote util>]
[-slavepersflag <slavepers>]
[-rtngprio <routingPriority>]
[-prefrte <preferredRouteId>]
[-intvsvd <internal VSVD config>] [-extvsvd <external VSVD config>]
[-directrte <directRoute>]
```

Table 3-10 lists the parameters for adding connections.

**Table 3-10 Parameters for Configuring Connections with the addcon Command**

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i> | Interface number (port number) of the port to connect. <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 1–499</li> <li>MPSM-T3E3-155 range: 1–1003</li> </ul> <p><b>Note</b> To see the port numbers for all active ATM ports, use the <b>dsports</b> command in the ATM CLI context.</p> <p><b>Note</b> When you add an endpoint on an NNI, make sure that PNNI signaling is disabled on the PXM (<b>cnfnpnportsig &lt;portid&gt; -nniver none</b>).</p> |

**Table 3-10** Parameters for Configuring Connections with the *addcon* Command (continued)

| Parameter           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |    |     |              |      |       |        |       |         |     |     |        |        |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|--------------|------|-------|--------|-------|---------|-----|-----|--------|--------|
| <i>vpi</i>          | <p>Specifies the Virtual Path Identifier.</p> <ul style="list-style-type: none"> <li>• VCC UNI range 0–255</li> <li>• VCC NNI or VNNI range: 0–4095</li> </ul> <p>For a VNNI, specify 1 VPI per port.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |     |              |      |       |        |       |         |     |     |        |        |
| <i>vci</i>          | <p>Specifies the Virtual Connection Identifier (VCI).</p> <ul style="list-style-type: none"> <li>• VCC UNI range: 1–4095</li> <li>• VCC NNI or VNNI range: 1–65535</li> <li>• VPC: 0 only</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |     |              |      |       |        |       |         |     |     |        |        |
| <i>service type</i> | <p>Specifies the ATM service type:</p> <ul style="list-style-type: none"> <li>• 1 = CBR1 (Constant Bit Rate 1)</li> <li>• 2 = VBR1RT (Variable Bit Rate 1, Real Time)</li> <li>• 3 = VBR2RT (Variable Bit Rate 2, Real Time)</li> <li>• 4 = VBR3RT (Variable Bit Rate 3, Real Time)</li> <li>• 5 = VBR1NRT (Variable Bit Rate 1, Non-Real Time)</li> <li>• 6 = VBR2NRT (Variable Bit Rate 2, Non-Real Time)</li> <li>• 7 = VBR3NRT (Variable Bit Rate 3, Non-Real Time)</li> <li>• 8 = UBR1 (Unspecified Bit Rate 1)</li> <li>• 9 = UBR2 (Unspecified Bit Rate 2)</li> <li>• 10 = ABRSTD (Standard ABR—See <b>cnfabr</b> for VS/VD-specific parameters)</li> <li>• 11 = CBR2 (Constant Bit Rate 2)</li> <li>• 12 = CBR3 (Constant Bit Rate 3)</li> </ul> <p><b>Note</b> CBR2 and CBR3 will be obsoleted in the future. Use CBR1 instead.</p> <p><b>Note</b> For ATM-FR interworking, the service mapping is.</p> <table border="0"> <tr> <td>FR</td> <td>ATM</td> </tr> <tr> <td>highpriority</td> <td>cbr1</td> </tr> <tr> <td>rtVBR</td> <td>vbr3rt</td> </tr> <tr> <td>rtVBR</td> <td>vbr3nrt</td> </tr> <tr> <td>uBR</td> <td>ubr</td> </tr> <tr> <td>stdABR</td> <td>stdabr</td> </tr> </table> | FR | ATM | highpriority | cbr1 | rtVBR | vbr3rt | rtVBR | vbr3nrt | uBR | ubr | stdABR | stdabr |
| FR                  | ATM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |     |              |      |       |        |       |         |     |     |        |        |
| highpriority        | cbr1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |     |              |      |       |        |       |         |     |     |        |        |
| rtVBR               | vbr3rt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |     |              |      |       |        |       |         |     |     |        |        |
| rtVBR               | vbr3nrt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |     |              |      |       |        |       |         |     |     |        |        |
| uBR                 | ubr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |     |              |      |       |        |       |         |     |     |        |        |
| stdABR              | stdabr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |    |     |              |      |       |        |       |         |     |     |        |        |
| <i>mastership</i>   | <p>Defines the endpoint as master or slave:</p> <ul style="list-style-type: none"> <li>• 1 = master</li> <li>• 2 = slave</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |     |              |      |       |        |       |         |     |     |        |        |

Table 3-10 Parameters for Configuring Connections with the *addcon* Command (continued)

| Parameter        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-casttype</b> | <p>The broadcast type is either point-to-point or point-to-multipoint, as follows:</p> <ul style="list-style-type: none"> <li>• 0 for point-to-point (P2P)</li> <li>• 1 for point-to-multipoint. P2MP connections are single-ended, so you add only the master endpoint. Thereafter, you can add parties using the <b>addparty</b> command.</li> </ul> <p><b>Note</b> Option 1 (P2MP) is not supported on Release 5 of the MPSM-T3E3-155.</p> <p>Default: point-to-point (0)</p> |
| <b>-slave</b>    | <p>Specifies the slave-end connection identifier for the <i>master</i> endpoint. You get the slave-end connection ID at the slave-end node when you add that endpoint. Specify the slave in the following format:</p> <p><i>slave_nsap_address.vpi.vci</i></p> <p><b>Note</b> This parameter is required when you configure a master endpoint (<i>mastership=1</i>).</p>                                                                                                         |
| <b>-lpcr</b>     | <p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                                                                                                                                           |
| <b>-rpcr</b>     | <p>Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                                                                                                                                           |
| <b>-lscr</b>     | <p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                                                                                                                                      |
| <b>-rscr</b>     | <p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                                                                                                                                      |
| <b>-lmbs</b>     | <p>Specifies the Maximum Burst Size for variable bit rate connections in the local to remote direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0–5000000 cells</p>                                                                                                                                                                                                                                                          |
| <b>-rmbs</b>     | <p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0–5000000 cells</p>                                                                                                                                                                                                                                                          |

Table 3-10 Parameters for Configuring Connections with the `addcon` Command (continued)

| Parameter    | Description                                                                                                                                                                                                                                                                  |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-lcdv</b> | Specifies the Local Cell Delay Variation, which limits the peak to peak cell delay variation from the local endpoint to the remote endpoint, in the range 1–16777215 microseconds.                                                                                           |
| <b>-rcdv</b> | Specifies the Remote Cell Delay Variation, which limits the peak to peak cell delay variation from the remote endpoint to the local endpoint, in the range 1–16777215 microseconds.<br>Default: –1                                                                           |
| <b>-lctd</b> | Specifies the Local Cell Transfer Delay (CTD), which limits the CTD from a local endpoint to a remote endpoint, in the ranges 0–65535 microseconds.                                                                                                                          |
| <b>-rctd</b> | Specifies the Remote Cell Transfer Delay (CTD), which limits the CTD from the remote endpoint to the local endpoint, in the range 0–65535 microseconds.<br>Default: –1                                                                                                       |
| <b>-lmcr</b> | Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                      |
| <b>-rmcr</b> | Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10–104268 cps</li> <li>• MPSM-16-T1E1 range: 10–36064 cps</li> </ul>                                      |
| <b>-cdvt</b> | Specifies the Local Cell Delay Variation Tolerance (CDVT) from a local endpoint to a remote endpoint, in the range 1–5000000 microseconds. Cell Delay Variation Tolerance controls the time scale over which the PCR is policed.<br><b>Note</b> No remote CDVT is necessary. |

Table 3-10 Parameters for Configuring Connections with the `addcon` Command (continued)



| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-cc</b>    | <p>Enables or disables the Operations, Administration, and Maintenance continuity check (OAM CC):</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 0 = disable (default)</li> </ul> <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p> <p><b>Note</b> A nonzero AIS delay timer affects CC functionality (if enabled) during the intentional rerouting of a connection following the <code>oprtrt</code> or <code>cnfrteopt</code> command at the PXM card. The <code>cnfaisdelaytimer</code> command at the PXM card controls the AIS-delay feature. If the delay timer is configured and the connection is groomed, the switch turns off CC until the connection is rerouted.</p> |
| <b>-stat</b>  | <p>Enables or disables connection statistics collection for the Cisco WAN Manager tool:</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 0 = disable (default)</li> </ul> <p><b>Note</b> Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>-frame</b> | <p>Enables or disables frame discard for this connection. You can use this option only at the master endpoint of a connection.</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 0 = disable (default)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



Table 3-10 Parameters for Configuring Connections with the `addcon` Command (continued)

| Parameter                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-mc</b><br><maxCost>              | <p>The maximum cost (<i>maxcost</i>) creates a routing priority. (PNNI does not use a route if the <i>cost</i> for the route exceeds the <i>maxcost</i>.) If you do not specify this optional parameter, the connection defaults to having the highest routing priority. Therefore, the <i>maxcost</i> parameter lets you <i>lower</i> the priority of a connection—but only in regards to finding a route for it. The range for <i>maxcost</i> is 0–4294967295, and the default is 4294967295.</p> <p>The <i>cost</i> of a <i>route</i> (not the <i>maxcost</i> of the <i>connection</i>) depends on a <i>cost-per-link</i> specified through the <b>cnfpnni-intf</b> command. The cost-per-link applies at the egress of a port for all connections of a particular service type. For example, the cost-per-link is the same for all VBR.1 connections that PNNI controls on a given port, but this cost can differ from all UBR.1 connections on the same port.</p> <p>For a route under consideration, the cost is the sum of all of the costs-per-link at each egress in the forward and backward directions along the entire route. In a 1-link route, for example, the cost is the sum of the cost-per-links at two ports.</p> <p>To illustrate further, with a 4-link route:</p> <ol style="list-style-type: none"> <li>1. Specify a <i>maxcost</i> of 100000.</li> <li>2. A route under consideration by PNNI has 4 links for a total of 8 egress points.</li> <li>3. The cost-per-link at 6 of the ports is 5040 (the default in <b>cnfpnni-intf</b>), and the cost per link at two ports is 10000.</li> </ol> <p>The node would use the route because the resulting cost of 50240 is less than the <i>maxcost</i> of 100000.</p> <p>Default: 4294967295</p> <p><b>Note</b> To return <i>maxcost</i> to the default, type <b>-mc 4294967295</b>. Setting <i>maxcost</i> to this value makes <i>maxcost</i> meaningless and causes PNNI to ignore this metric when making routing decisions.</p> |
| <b>-lputil</b>                       | <p>Specifies the Local Percentage Utilization, in the range 1–100 percent.</p> <p>Default: 100 percent</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>-rputil</b>                       | <p>Specifies the Remote Percentage Utilization, in the range 1–100 percent.</p> <p>Default: 100 percent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>-slavepersflag</b><br><slavepers> | <p>The slave endpoint persistency flag is necessary for setting up a single-ended connection.</p> <ul style="list-style-type: none"> <li>• <b>0</b> = persistent.</li> <li>• <b>1</b> = for nonpersistent.</li> </ul> <p>Default: <b>0</b> (persistent)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-rtngprio</b>                     | <p>The routing priority for the connection, in the range 1–15. 0 is reserved for control connections, and 1 is reserved for IP to CWM.</p> <p>Default: 8</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Table 3-10 Parameters for Configuring Connections with the *addcon* Command (continued)

| Parameter         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-prefrte</b>   | <p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Before you associate it with the connection, be sure the route exists because the system does not check it. To display preferred routes, use the <b>dspprefs</b> command at the PXM card.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> <li>• 0: Disassociate a connection from a route (default)</li> <li>• 1-65535: The preferred route id</li> </ul> <p> <b>Note</b> Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. To display all connections associated with a route, use the <b>dspons [-rteid &lt;pref rte id&gt; ]</b> command at the PXM card.</p> <p> <b>Note</b> An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p> |
| <b>-intvsvd</b>   | <p>Enables or disables VS/VD on the internal loop:</p> <ul style="list-style-type: none"> <li>• 1 = Off (default)</li> <li>• 2 = On</li> <li>• 3 = Unspecified: Use the VS/VD specification in the SCT file.</li> </ul> <p>The <b>cnfintfvsvd</b> command enables VS/VD at the PNNI port level.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>-extvsvd</b>   | <p>Enables or disables VS/VD on the external loop:</p> <ul style="list-style-type: none"> <li>• 1 = Off (default)</li> <li>• 2 = On</li> <li>• 3 = Unspecified: Use the VS/VD specification in the SCT file.</li> </ul> <p>The <b>cnfextfvsvd</b> command enables VS/VD at the PNNI port level.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>-directrte</b> | <p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> <li>• 1 = yes (make the preferred route required)</li> <li>• 0 = no (do not require the connection to take the preferred route)</li> </ul> <p>Default: 0</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**Caution**

After you create an SPVC connection, you cannot change the SPVC prefix until all SPVC connections are deleted. The procedure for changing the SPVC prefix is described in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

The following sample command defines a port as the slave side of an SPVC. Note the slave id shown in the command response.

```
M8850_SF.27.MPSM16T1E1[ATM] .a > addcon 15 10 40 1 2
slave endpoint added successfully
```

**Step 3**

To verify that the SPVC or SPVP was associated with the preferred route, enter the **dspon** *<portid>* *<vpi>* *<vci>* command. Replace *<portid>* with the port ID associated with the connection. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection.

**Tip**

The PCR, MBS, CDVT, CDV, MCR, and CTD configuration options are optional. To override the default values for any option, enter the option with a new value.

**Note**

You can configure additional ABR parameters using the **cnfabr** command. For more information, refer to the *Cisco MGX 8800/8900 Series Command Reference, Release 5.2*.

**Step 4**

Write down the NSAP address the switch displays when the **addcon** command is complete. You need this to configure the master side of the SPVC.

**Tip**

When you set up the master side of the connection, you must enter the slave ATM address reported by the **addcon** command. If you maintain the current session or use the session **copy** command to copy the ATM address now, you can use the session **paste** command to complete the **addcon** command on the switch that hosts the master side of the connection.

**Step 5**

Verify the slave-side SPVC addition by entering the **dspscons** command as follows:

```
M8850_SF.27.MPSM16T1E1[ATM] .a > dspscons
```

The switch displays the slave connection just added:

```
M8850_SF.27.MPSM16T1E1[ATM] .a > dspscons
record Identifier Type Srvctype M/S Upld Admn Alarm
----- -
0 15 0010 00040 VCC cbr1 S 00000032 UP Condn
```

## Configuring the Master Side of SPVCs and SPVPs

To configure the master side of an SPVC, use the following procedure.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.



**Tip**

During this procedure, you must enter the ATM address for the slave end of the connection. If you establish this session from the same workstation you used to create the slave connection, you can use the Copy and Paste commands to avoid data entry errors.

- Step 2** Enter the **cc** command to select the card that hosts the master side of the SPVC:

```
MGX8850.7.PXM.a > cc <slotnumber>
```

Replace *<slotnumber>* with the slot number of card that hosts the master side of the SPVC.

- Step 3** Define the master side of the SPVC by entering the **addcon** command as follows:

```
M8850_SF.27.MPSM16T1E1[ATM].a > addcon <ifNum> <vpi> <vci> <service type> <mastership>
[-casttype <value>] [-slave <NSAP.vpi.vci>]
[-lpcr <local PCR>] [-rpcr <remote PCR>]
[-lscr <local SCR>] [-rscr <remote SCR>]
[-lmbs <local MBS>] [-rmbs <remote MBS>]
[-lcdv <local maxCDV>] [-rcdv <remote maxCDV>]
[-lctd <local maxCTD>] [-rctd <remote maxCTD>]
[-lmcr <local MCR>] [-rmcr <remote MCR>]
[-cdvt <local CDVT>] [-cc <OAM CC Cnfg>] [-stat <Stats Cnfg>]
[-frame <frame discard>] [-mc <maximum cost>]
[-lputil <local util>] [-rputil <remote util>]
[-slavepersflag <slavepers>]
[-rtngprio <routingPriority>]
[-preferfte <preferredRouteId>]
[-intvsvd <internal VSVD config>] [-extvsvd <external VSVD config>]
[-directrte <directRoute>]
```



**Note**

[Table 3-10](#) in the previous section lists the parameters for configuring connections.

If you omit an optional parameter, the SPVC/SPVP uses the default value.



**Tip**

The PCR, MBS, CDVT, CDV, MCR, and CTD configuration options are optional. If you omit one of these options when entering the **addcon** command, the connection uses the default value. To override the default values for any option, enter the option with a new value.

The following sample command defines a port as the master side of an SPVC. Note the master ID shown in the command response.

```
M8850_SF.27.MPSM16T1E1[ATM].a > addcon 113 101 201 1 1 -slave 47009181000000000164444B610000011B180F00.10.40
master endpoint added successfully
master endpoint id : 47009181000000000164444B610000011B187100.101.201
```

- Step 4** Verify the master-side SPVC addition by entering the **dspscons** command as follows:

```
M8850_NY.13.MPSM155[ATM].a > dspscons
```

The switch displays a report showing all connections. The following example shows a report for a switch with one connection:

```

M8850_SF.27.MPSM16T1E1 [ATM] .a > dspcons
record Identifier Type Srvctype M/S Updld Admn Alarm
----- -
0 15 0010 00040 VCC cbr1 S 00000032 UP none
1 113 0101 00201 VCC cbr1 M 00000033 UP none

```

**Step 5** To display the configuration for one connection, enter the **dspcon** command as follows:

```
M8850_NY.13.MPSM155 [ATM] .a > dspcon <ifNum> <vpi> <vci>
```

Replace the *<ifNum>* parameter with the interface or port number. Replace *<vpi>* and *<vci>* with the VPI and VCI for the connection.

The following example shows a **dspcon** command report.

```

M8850_SF.27.MPSM16T1E1 [ATM] .a > dspcon 113 101 201

Local : NSAP Address vpi vci
(M) 47009181000000000164444B610000011B187100 101 201
Remote : NSAP Address vpi vci
(S) 47009181000000000164444B610000011B180F00 10 40

Conn. Type : VCC Admn Status : ADMN-UP
Service Type : cbr1 Oper Status : OK
Controller : 2 Record # : 1
SlavePersist : YES Cast-type : P2P

Local PCR : 50 Remote PCR : 50
Local SCR : N/A Remote SCR : N/A
Local CDV : -1 Remote CDV : -1
Local CTD : -1 Remote CTD : -1
Local MBS : N/A Remote MBS : N/A
Max Cost : -1 Frame discard: DISABLED
Local CDVT : 250000 OAM segment : ENABLED
Local PctUtil : 100 Rmt PctUtil : 100
Priority : 8
Pref Rte Id : 0 Directed route: NO

Type <CR> to continue, Q<CR> to stop:
OAM CC Config : DISABLED Statistics : ENABLED

Loopback Type : No Lpbk | Dir: N/A | Status: No Lpbk | RTD: 0us

Port side Tx : normal Swth side Tx : normal
Port side Rx : normal Swth side Rx : normal

I-AIS/RDI E-AIS/RDI CONDITIONED CCFAIL IfFail Mismatch LMI-ABIT
NO NO NO NO NO NO NO

```

The -1 entries in the example above indicate that a value was not specified with the **addcon** command. The N/A entries indicate that a value is not applicable to connections with this service type.

**Step 6** To display connections from the PXM card, enter the **cc** command to select the active PXM, then enter the **dspcons** command.

The following example shows the report for the connection shown in the preceding examples.

```
M8850_NY.7.PXM.a > dspcons
Local Port Vpi.Vci Remote Port Vpi.Vci State Owner Pri Persistency
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
27.15 10 40 27.113 101 201 OK SLAVE - Persistent
Local Addr: 47.009181000000000164444b61.0000011b180f.00
Remote Addr: 47.009181000000000164444b61.0000011b1871.00
Preferred Route ID:- Cast Type: P2P
27.113 101 201 27.15 10 40 OK MASTER 8 Persistent
Local Addr: 47.009181000000000164444b61.0000011b1871.00
Remote Addr: 47.009181000000000164444b61.0000011b180f.00
Preferred Route ID:- Cast Type: P2P
```

## Defining Destination Addresses for Static Links

Typically, you use AINI or IISP static links to join two independent networks, rather than PNNI, so that the topologies of the two networks can remain unknown to the each other. When you create a static link, you must identify destination addresses for each side of the link. These addresses identify which ATM nodes are accessible on the other side of the link. After you define these addresses, all requests for these addresses are routed over the static link to the other network.



### Note

To enable bidirectional call initiation, the appropriate destination address must be configured at each end of the link. For example, if nodes A and B have PNNI connections to a static link, the ATM address for Node B must be added to the Node A side of the static link, and the Node A address must be added to the Node B side of the static link.

Use the following procedure to add destination addresses to a static link.

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.
- Step 2** To locate the port to which you want to add an address, enter the **dsppnports** command.
- Step 3** Enter the **addaddr** command as follows to specify an ATM address:

```
MGX8850.7.PXM.a > addaddr <[shelf.]slot[:subslot].port[:subport]> <atm-address> <length>
[-type {int|ext}] [-proto {local | static}] [-plan {e164|nsap}] [-scope <value>] [-redst
{yes|no}]
[-tnid tnid]
```



### Note

The **addaddr** command is used to define destination addresses for static links and to specify static addresses for links to CPE. The command format above shows the options as they apply when defining destination addresses for static links.

**Step 4** Enter the **dspatmaddr** command as follows to verify that the new address is assigned:

```
MGX8850.7.PXM.a > dspatmaddr <portid>
```

Replace *<portid>* with the port address using the format *slot:bay.line:ifnum*. For example:

```
MGX8850.7.PXM.a > dspaddr 2:1.2:2
47.0091.8100.0000.0003.6b5e.30cd.0003.6b5e.30cd.01
length: 160 type: exterior proto: static
scope: 0 plan: nsap_icd redistribute: false
```

---







## Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1

This chapter describes how to provision Frame Relay services on the MPSM-T3E3-155 and MPSM-16-T1E1 cards, and provides procedures for adding Frame Relay ports and connections to the physical lines and paths. The types of links and connections are described in [Table 4-1](#).



### Note

Before you perform the procedures in this chapter, you must set up the MPSM-T3E3-155 and MPSM-16-T1E1 cards and lines from the PXM controller as described in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#) Make sure that you select the appropriate card SCT for the controller that you are using.

## MPSM-T3E3-155 and MPSM-16-T1E1 Connection Types

You can configure an SPVC between two MPSM-T3E3-155 and MPSM-16-T1E1 cards Frame Relay ports in any of the following instances:

- Any two Frame Relay ports on one MPSM-T3E3-155 or MPSM-16-T1E1 card in a Cisco MGX 8850 (PXM1E/PXM45) or Cisco 8830 switch
- Any two Frame Relay ports on different MPSM-T3E3-155 or MPSM-16-T1E1 cards in the same Cisco MGX 8850 (PXM1E/PXM45) or Cisco 8830 switch
- Any two Frame Relay ports on different MPSM-T3E3-155 or MPSM-16-T1E1 cards in different Cisco MGX 8850/8830 switches

Table 4-1 summarizes all supported Frame Relay connections for the MPSM-T3E3-155 and MPSM-16-T1E1 cards.

**Table 4-1 Supported MPSM-T3E3-155 and MPSM-16-T1E1 Frame Relay Connections**

| Remote Card                     | Restrictions                                                                                                                                                                  | Procedure                                                                                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MPSM-T3E3-155                   | MPSM-T3E3-155 cards do not support NIW or NIW-Replace SPVCs between ATM and Frame Relay ports.                                                                                | Use the “ <a href="#">MPSM to MPSM Frame Relay Configuration Quickstart</a> ” to configure an SPVC between two MPSM Frame Relay ports.                                                      |
| MPSM-16-T1E1                    | MPSM-T3E3-155 cards do not support NIW or NIW-Replace SPVCs between ATM and Frame Relay ports.                                                                                |                                                                                                                                                                                             |
| MPSM-8T1E1                      | MPSM-8T1E1 must be in Frame Relay mode.                                                                                                                                       | Use the “ <a href="#">MPSM Frame Relay to MPSM ATM Configuration Quickstart</a> ” to configure an SPVC between an MPSM Frame relay port and an MPSM ATM port.                               |
| FRSM-2CT3                       | None                                                                                                                                                                          |                                                                                                                                                                                             |
| FRSM-2T3E3                      | MPSM-T3E3-155 connections only; FRSM-2CT3 cannot channelize for the MPSM-16-T1E1.                                                                                             | Use the “ <a href="#">MPSM to Non-MPSM Frame Relay Configuration Quickstart</a> ” section on page 4-7 to configure an SPVC between an MPSM Frame Relay port and a port on a different card. |
| FRSM-8T1E1                      | None                                                                                                                                                                          |                                                                                                                                                                                             |
| FRSM-HS2/B                      | None                                                                                                                                                                          |                                                                                                                                                                                             |
| FRSM12                          | MPSM-T3E3-155 connections only; FRSM12 cannot channelize for the MPSM-16-T1E1.                                                                                                |                                                                                                                                                                                             |
| AUSM-8T1E1                      | AUSM-8T1E1 cards do not support NIW or NIW-Replace SPVCs.                                                                                                                     |                                                                                                                                                                                             |
| AXSM                            | AXSM cards do not support NIW and NIW-Replace SPVCs, and AXSM/A and AXSM/B cards do not support ABR-STC SPVCs.<br><br>AXSM needs T3 back card for MPSM-16-T1E1 compatibility. |                                                                                                                                                                                             |
| PXM1E                           | PXM1E cards do not support NIW or NIW-Replace SPVCs.                                                                                                                          |                                                                                                                                                                                             |
| BXM<br>BXM-E<br>BXM-D<br>BXM-EX | MPSM-T3E3-155 connections only.                                                                                                                                               |                                                                                                                                                                                             |
| RPM                             | RPM cards do not support NIW or NIW-replace SPVCs.                                                                                                                            |                                                                                                                                                                                             |
| PXM1                            | PVC connections only; PXM1 does not support PNNI and SPVCs.<br><br>PXM1 cards do not support NIW or NIW-replace SPVCs.                                                        |                                                                                                                                                                                             |

# Frame Relay Quickstart Provisioning Procedures

This section contains abbreviated procedures for provisioning the communication capabilities of MPSM-T3E3-155 cards installed in Cisco MGX 8850/8830 Release 5 switches. These procedures provide a high level overview and summary for users who may already be experienced in configuring Cisco MGX 8850/8830 switches. Most steps in the quickstart procedures refer directly to the section that contains detailed configuration procedures.

This section has the following quickstarts:

- [MPSM to MPSM Frame Relay Configuration Quickstart, page 4-3](#)
- [MPSM Frame Relay to MPSM ATM Configuration Quickstart, page 4-5](#)
- [MPSM to Non-MPSM Frame Relay Configuration Quickstart, page 4-7](#)

Before configuring Frame Relay connections, perform the following tasks:

- Complete the general switch configuration procedures described in *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.
- Set up lines and/or paths for the Frame Relay service and its connections, as described in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#)



**Note** For a detailed description of the commands used in this chapter, refer to [Chapter 7, “Command Reference.”](#)



**Note** The equipment at both ends of a Frame Relay line must be configured with compatible settings in order for the link to be logically completed.

## MPSM to MPSM Frame Relay Configuration Quickstart

To configure an SPVC between a local MPSM-T3E3-155 or MPSM-16-T1E1 Frame Relay port and a remote Frame Relay port on the same or a different MPSM-T3E3-155 or MPSM-16-T1E1 switch, perform the following steps:

|        | Command                                                                                                            | Comments                                                                                                                                                                                           |
|--------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | Establish a connection between the MGX switches that hold the MPSM-T3E3-155 or MPSM-16-T1E1 cards to be connected. | If the SPVC endpoints are on different nodes, configure trunks between the nodes and verify PNNI connectivity.<br><br>See the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> . |
| Step 2 | <code>username</code><br><code>&lt;password&gt;</code>                                                             | Start a configuration session.<br><br>To perform all steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.                                               |
| Step 3 | <code>cc</code>                                                                                                    | Start a management session with the MPSM-T3E3-155 or MPSM-16-T1E1 card.                                                                                                                            |
| Step 4 | <code>setctx fr</code>                                                                                             | If the current CLI context is ATM, use the <code>setctx fr</code> command to change to the Frame Relay context.                                                                                    |

|         | Command                                                                                                                                                  | Comments                                                                                                                                                                                                                                                                                                                                                                |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 5  | <b>upln</b> <bay.line>                                                                                                                                   | Bring up (activate) the physical lines at both ends of the SPVC.<br><br>See the “ <a href="#">Setting Up Lines</a> ” section in <a href="#">Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”</a><br><br>Remember to select the appropriate service class template (SCT) for the controller, or controllers, that you are using. |
| Step 6  | <b>cnfln</b> <bay.line> <arguments><br>If you are configuring a DS3, SONET or SDH line:<br><br><b>cnfpath</b> <path> <arguments><br><b>uppath</b> <path> | Configure the line. If you are using an MPSM-T3E3-155, you must also channelize the line into DS1 paths and bring up the paths at both ends of the SPVC.<br><br>See the “ <a href="#">Setting Up Lines</a> ” section in <a href="#">Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”</a>                                        |
| Step 7  | <b>addport</b><br>Related command:<br><b>dsports</b>                                                                                                     | Add and configure Frame Relay ports on the lines or paths at each end of the SPVC you are creating. This step establishes Frame Relay communication between two Frame Relay devices.<br><br>For standard port configuration, see the “ <a href="#">Provisioning Frame Relay Ports</a> ” section in this chapter.                                                        |
| Step 8  | <b>addcon</b><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                                      | Add and configure the slave side of the SPVC. Record the NSAP address that is returned after the connection is added.<br><br>See the “ <a href="#">Configuring the Slave Side of SPVCs</a> ” section on <a href="#">page 4-24</a> .                                                                                                                                     |
| Step 9  | <b>cc</b><br>or<br><i>username</i><br>< <i>password</i> ><br><b>cc</b>                                                                                   | Start a configuration session with the card that will host the master end of the connection. If it is not the same card: <ul style="list-style-type: none"> <li>• <b>cc</b> to the slot</li> <li>• Log in to the remote node and <b>cc</b> to the slot</li> </ul>                                                                                                       |
| Step 10 | <b>addcon</b><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                                      | Add, configure, and connect the master side of the SPVC. Use the NSAP address from the slave connection.<br><br>See the “ <a href="#">Configuring the Master Side of SPVCs</a> ” section on <a href="#">page 4-30</a> .                                                                                                                                                 |

## MPSM Frame Relay to MPSM ATM Configuration Quickstart

To configure an SPVC between a local MPSM-T3E3-155 or MPSM-16-T1E1 Frame Relay port and an ATM port on another MPSM-T3E3-155 or MPSM-16-T1E1 in the same switch or in another switch, perform the following steps:

|        | Command                                                                                                                                                                                              | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | Establish a connection between the MGX switches that hold the MPSM cards to be connected.                                                                                                            | If the SPVC endpoints are on different nodes, configure trunks between the nodes and verify PNNI connectivity.<br><br>See the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> .                                                                                                                                                                                                                                                                        |
| Step 2 | <code>username</code><br><code>&lt;password&gt;</code>                                                                                                                                               | Start a configuration session.<br><br>To perform all steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.                                                                                                                                                                                                                                                                                                                      |
| Step 3 | <code>cc</code>                                                                                                                                                                                      | Start a management session with the card that will host the slave side of the SPVC (if you are configuring a double-ended SPVC).                                                                                                                                                                                                                                                                                                                                          |
| Step 4 | <code>setctx [atm   fr]</code>                                                                                                                                                                       | Set the current CLI context as appropriate for the slave endpoint of the SPVC you are configuring. If the endpoint is on a Frame Relay port, set the CLI context to <b>fr</b> . Otherwise, set the CLI context to <b>atm</b> .                                                                                                                                                                                                                                            |
| Step 5 | <code>upln &lt;bay.line&gt;</code>                                                                                                                                                                   | Bring up (activate) the physical lines at each end of the SPVC you are creating.<br><br>See the “Setting Up Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”<br><br>Remember to select the appropriate service class template (SCT) for the controller, or controllers, that you are using.                                                                                                                     |
| Step 6 | <code>cnfln &lt;bay.line&gt; &lt;arguments&gt;</code><br>If you are configuring a DS3, SONET or SDH line:<br><code>cnfpath &lt;path&gt; &lt;arguments&gt;</code><br><code>uppath &lt;path&gt;</code> | Configure the line. If you are using an MPSM-T3E3-155, you must also channelize the line into DS1 paths and bring up the paths at both ends of the SPVC.<br><br>See the “Setting Up Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”                                                                                                                                                                            |
| Step 7 | <code>addport</code><br>Related command:<br><code>dspparts</code>                                                                                                                                    | Add a port to the line or path for the SPVC. This port is either a Frame Relay or ATM port, as determined in step 4.<br><br>For standard port configuration, see the “Provisioning Frame Relay Ports” section on page 4-10 in this chapter.                                                                                                                                                                                                                               |
| Step 8 | <code>cnfpart</code><br>Related commands:<br><code>dspparts</code><br><code>dsppart</code>                                                                                                           | Optional: Configure trunk resources on the PNNI controller. This step can assign all of the trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller.<br><br><b>Note</b> A partition is automatically added when you add a port. Use the <b>cnfpart</b> command to change the configuration of a resource partition.<br><br>See the “Partitioning Port Resources Between Controllers” section on page 4-17 in this chapter. |

|         | Command                                                                                                                                       | Comments                                                                                                                                                                                                                                                          |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 9  | <b>cc</b>                                                                                                                                     | Start a management session with the PXM card.                                                                                                                                                                                                                     |
| Step 10 | <b>dnpnport</b><br><b>cnfnportsig</b><br><b>uppnport</b><br>Related commands:<br><b>dsppnports</b><br><b>dsppnport</b><br><b>dsppnportsig</b> | Define the signaling protocol used on the trunk. The default signaling protocol is UNI Version 3.1. Specify pnni10 for PNNI trunks.<br><br>See the “ <a href="#">Selecting the Port Signaling Protocol</a> ” section on page 4-19 in this chapter.                |
| Step 11 | <b>cc</b>                                                                                                                                     | Start a management session with the MPSM card that will host the slave end of the SPVC.                                                                                                                                                                           |
| Step 12 | <b>setctx [atm   fr]</b>                                                                                                                      | Set the current CLI context as appropriate for the slave end of the SPVC you are configuring.                                                                                                                                                                     |
| Step 13 | <b>addcon</b><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                           | Add and configure the slave side of an SPVC (if you are configuring a double-ended SPVC). Record the NSAP address that is returned after the connection is added.<br><br>See the “ <a href="#">Configuring the Slave Side of SPVCs</a> ” section on page 4-24.    |
| Step 14 | <b>cc</b><br>or<br><i>username</i><br><password><br><b>cc</b>                                                                                 | Start a configuration session with the card that will host the master end of the connection. If it is not the same card: <ul style="list-style-type: none"> <li>• <b>cc</b> to the slot</li> <li>• Log in to the remote node and <b>cc</b> to the slot</li> </ul> |
| Step 15 | <b>addcon</b><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                           | Add, configure, and connect the master side of an SPVC on the remote card. Use the NSAP address from the slave connection.<br><br>See the “ <a href="#">Configuring the Master Side of SPVCs</a> ” section on page 4-30.                                          |

## MPSM to Non-MPSM Frame Relay Configuration Quickstart

To configure an SPVC between a local MPSM-T3E3-155 or MPSM-16-T1E1 port and a port on a different card type in the same switch or in another switch, perform the following steps:

|        | Command                                                                                                                                                                                                          | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | Establish a connection between the two switches that hold the cards you plan to connect.                                                                                                                         | If the SPVC endpoints are on different nodes, configure trunks between the nodes and verify PNNI connectivity.<br><br>See the <i>Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2</i> .                                                                                                                                                                                                                                                              |
| Step 2 | <code>username</code><br><br><code>&lt;password&gt;</code>                                                                                                                                                       | Start a configuration session.<br><br><b>Note</b> To perform all steps in this quickstart procedure, you must log in as a user with Group1 privileges or higher.                                                                                                                                                                                                                                                                                                |
| Step 3 | <code>cc</code>                                                                                                                                                                                                  | Start a management session with the MPSM card.                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Step 4 | <code>setctx fr</code>                                                                                                                                                                                           | Use the <code>setctx fr</code> command to ensure you are using the Frame Relay CLI context.                                                                                                                                                                                                                                                                                                                                                                     |
| Step 5 | <code>upln &lt;bay.line&gt;</code>                                                                                                                                                                               | Bring up (activate) the physical lines at each end of the SPVC you are creating.<br><br>See the “Setting Up Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”<br><br>Remember to select the appropriate service class template (SCT) for the controller, or controllers, that you are using.                                                                                                           |
| Step 6 | <code>cnfln &lt;bay.line&gt; &lt;arguments&gt;</code><br><br>If you are configuring a DS3, SONET or SDH line:<br><br><code>cnfpath &lt;path&gt; &lt;arguments&gt;</code><br><br><code>uppath &lt;path&gt;</code> | Configure the line. If you are using an MPSM-T3E3-155, you must also channelize the line into DS1 paths and bring up the paths at both ends of the SPVC.<br><br>See the “Setting Up Lines” section in Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”                                                                                                                                                                  |
| Step 7 | <code>addport</code><br><br>Related command:<br><br><code>dspports</code>                                                                                                                                        | Add a Frame Relay port on the MPSM card.<br><br>For standard port configuration, see the “Provisioning Frame Relay Ports” section on page 4-10.                                                                                                                                                                                                                                                                                                                 |
| Step 8 | <code>cnfpart</code><br><br>Related commands:<br><br><code>dspparts</code><br><br><code>dsppart</code>                                                                                                           | Optional: Configure trunk resources on the PNNI controller. This step can assign all of the trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller.<br><br><b>Note</b> A partition is automatically added when you add a port. Use the <code>cnfpart</code> command to change the configuration of a resource partition.<br><br>See the “Partitioning Port Resources Between Controllers” section on page 4-17. |
| Step 9 | <code>cc</code>                                                                                                                                                                                                  | Start a management session with the PXM card.                                                                                                                                                                                                                                                                                                                                                                                                                   |

|         | Command                                                                                                                                          | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 10 | <b>dnpport</b><br><b>cnfpnportsig</b><br><b>uppport</b><br><br>Related commands:<br><b>dsppnports</b><br><b>dsppnport</b><br><b>dsppnportsig</b> | Define the signaling protocol used on the trunk. The default signaling protocol is UNI Version 3.1. Specify pnni10 for PNNI trunks.<br><br>See the <a href="#">“Selecting the Port Signaling Protocol”</a> section on page 4-19.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Step 11 | <b>cc</b>                                                                                                                                        | Start a management session with the MPSM-T3E3-155 or MPSM-16-T1E1 card.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Step 12 | <b>addcon</b><br><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                          | Add and configure the slave side of an SPVC (if you are configuring a double-ended SPVC). Record the NSAP address that is returned after the connection is added.<br><br>If the slave side of the connection is on the MPSM card, see the <a href="#">“Configuring the Slave Side of SPVCs”</a> section on page 4-24.<br><br>If the slave side of the connection is on a non-MPSM card, refer to the documentation for that card.                                                                                                                                                                                                                                   |
| Step 13 | <b>getpcrfromcir</b><br><br>Related commands:<br><b>dspon</b>                                                                                    | If you are adding a connection to an ATM card (such as an AXSM card), you must obtain the peak cell rate.<br><br>You can calculate the peak cell rate ( <i>PCR value</i> ) from the CIR you set with the <b>addcon</b> command's <i>&lt;cir&gt;</i> parameter in step 12.<br><br><b>Note</b> Enter the <b>dspon &lt;ifNum&gt; &lt;dlci&gt;</b> command to view a connection's PCR, SCR, and MCR.                                                                                                                                                                                                                                                                    |
| Step 14 | <b>cc</b><br>or<br><i>username</i><br><i>&lt;password&gt;</i><br><b>cc</b>                                                                       | Start a configuration session with the card that will host the master end of the connection. If it is not the same card: <ul style="list-style-type: none"> <li>• <b>cc</b> to the slot</li> <li>• Log in to the remote node and <b>cc</b> to the slot</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                   |
| Step 15 | <b>addcon</b><br><br>Related commands:<br><b>dspon</b><br><b>dspons</b>                                                                          | Add, configure, and connect the master side of an SPVC on the other card. Use the NSAP address and cell rates (PCR, SCR, and MBS) from the slave connection, as appropriate for the service type.<br><br>If the master side of the connection is on the MPSM card, see the <a href="#">“Configuring the Master Side of SPVCs”</a> section that appears later in this chapter.<br><br>If the master side of the connection is on a non-MPSM card, refer to the documentation for that card.<br><br><b>Note</b> You can obtain the peak cell rate ( <i>PCR value</i> ) from the CIR you set with the <b>addcon</b> command's <i>&lt;cir&gt;</i> parameter in step 12. |



- For additional details about configuring SPVCs on AXSM cards, see the *Cisco ATM Services (AXSM) Software Configuration Guide, Release 5*.
- For additional details about configuring SPVCs on PXM1E cards, see the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.
- For additional details about configuring SPVCs on PXM1 cards, see the *MGX PXM Software Configuration Guide*.
- For additional details about configuring SPVCs on BXM cards, see the *BPX 8600 Series Installation and Configuration* documentation.
- For additional details about configuring SPVCs on RPM cards, see the *Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide, Release 5.2* or the *Cisco MGX Route Processor Module (RPM-PR) Installation and Configuration Guide, Release 5.2*.

## Frame Relay Configuration Procedures

This section describes the following Frame Relay concepts and general configuration procedures:

- [Provisioning Frame Relay Ports, page 4-10](#)
- [Partitioning Port Resources Between Controllers, page 4-17](#)
- [Selecting the Port Signaling Protocol, page 4-19](#)
- [Provisioning and Managing SPVCs, page 4-23](#)

## General Information

To do the procedures in this chapter you must start a CLI session on the appropriate MPSM card by logging in with a username and password with GROUP 1 privileges or higher. For detailed information about usernames, passwords, and logging into the CLI, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

The descriptions and procedures in this chapter operate in the Frame Relay Service CLI context. See [Chapter 7, “Command Reference”](#) for detailed descriptions about the MPSM-T3E3-155 and MPSM-16-T1E1 Frame Relay service commands and parameters.

See [Table 1-2 in Chapter 1, “Introduction”](#) for a list of the MPSM-T3E3-155 and MPSM-16-T1E1 model numbers, back cards, and the number of possible connections.

Some of the procedures in this section use PXM commands and PNNI commands. Refer to the *Cisco MGX 8800/8900 Series Command Reference, Release 5.2* for descriptions of the PXM and PNNI commands and parameters.

For more information on port signaling, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

## Provisioning Frame Relay Ports

On an MPSM card, a logical port is also called a virtual interface and is represented by the *ifNum* variable. The cards can have the following types of Frame Relay interfaces:

- **Frame Relay**—This is a port that sends and receives standard Frame Relay frames as defined by ITU-T Q.922. Multiple virtual circuits (VCs) can terminate on one Frame Relay port and are differentiated by their data-link connection identifiers (DLCIs).
- **FrameForwarding**—This is a port that sends and receives frame-based traffic that is similar to Frame Relay frames such as HDLC, SDLC, and X.25 over Frame Relay interfaces. You can transport any protocol across an ATM network, as long as it supports the HDLC, SDLC, or X.25 format. Application examples include routers interconnected through PPP, mainframes or hosts connected by X.25/HDLC, SNA/SDLC links, and video CODECs that use a frame-based protocol. Frame Forwarding is often used for the aggregation of point-to-point (PPP) traffic into an ATM network, then exiting the ATM network through an ATM interface over multiple VCs into routers supporting PPP over ATM. Frame Forwarding features include:
  - No translation or mapping is attempted between the frame header bits and ATM layer EFCI and CLP bits. Because the port is unable to read the address and control information in the frame, all traffic must be forwarded to one destination frame forwarding port.
  - Only one frame forwarding VC is allowed per port.
  - If a connection is set up, all frames are routed to and from that connection, otherwise the frame is discarded.
  - One set of Frame Relay traffic access parameters (for example, CIR) is configured for the logical port in frame forwarding mode. All arriving frames are treated as if they arrived without a set DE bit. If the frame is determined to exceed committed rate (exceeding CIR), the CLP of all cells associated with that frame is set to indicate low priority. If the frame exceeds the total rate allowed for committed and uncommitted traffic, the frame is discarded.
  - Support for PPP encapsulation over AAL5 and frame is based on RFC 1483 and RFC 1490.

## Preparing to Add Frame Relay Ports

Before you can add Frame Relay ports, you must perform the following tasks:

- Bring up (activate) and configure the physical lines, for example the line payload type. See the “[Setting Up Lines](#)” section in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,”](#)
- Channelize SONET, SDH, and DS3 lines into paths. See the “[Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 \(T3\) Lines](#)” in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,”](#)

Bringing up a line or path establishes physical layer connectivity between two network devices. When you add a Frame Relay port to a line or path, you enable Frame Relay communication by means of that line.

## Adding Frame Relay Ports

To add a Frame Relay port to a line or path, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Enter the **cc** command to start a management session with the active MPSM-T3E3-155 card on which you want to add a port.
- Step 3** Identify the line or path number on which you will add the port.

If you are adding a port to a line, enter the **dsplns** command to determine the line number on which to add the Frame Relay port, as shown in the following MPSM-16-T1E1 example.

```
M8850_SF.27.MPSM16T1E1 [FR] .a > dsplns
```

| Line Num | Line State | Line Type | Line Lpbk | Length (meters) | Valid Intvls | Alarm State |
|----------|------------|-----------|-----------|-----------------|--------------|-------------|
| 1.1      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.2      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.3      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.4      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.5      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.6      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| 1.7      | Down       | dsx1ESF   | NoLoop    | 1               | 0            | Clear       |
| 1.8      | Up         | dsx1ESF   | NoLoop    | 1               | 96           | Clear       |
| ...      |            |           |           |                 |              |             |

If you are adding a port to a path, enter the **dsppaths** command to determine the path number on which to add the Frame Relay port. The following MPSM-T3E3-155 example shows the DS1 paths previously configured on line 1.1.1. The first two paths are dedicated to a Multilink Frame Relay bundle, but the third one is available for Frame Relay.

```
M8850_SF.9.MPSM155 [FR] .a > dsppaths -ds1
```

| Path    | Path Type | Admin Status | DS1 Type | Path Lpbk | Alarm Status | Oper State | Path Service |
|---------|-----------|--------------|----------|-----------|--------------|------------|--------------|
| 1.1.1:1 | ds1       | Up           | dsx1ESF  | NoLoop    | Clear        | Up         | mfr          |
| 1.1.1:2 | ds1       | Up           | dsx1ESF  | NoLoop    | Clear        | Up         | mfr          |
| 1.1.1:3 | ds1       | Up           | dsx1ESF  | NoLoop    | Clear        | Up         | unspecified  |
| 1.1.1:4 | ds1       | Down         | dsx1ESF  | NoLoop    | Unknown      | Down       | invalid      |
| 1.1.1:5 | ds1       | Down         | dsx1ESF  | NoLoop    | Unknown      | Down       | invalid      |
| 1.1.1:6 | ds1       | Down         | dsx1ESF  | NoLoop    | Unknown      | Down       | invalid      |
| 1.1.1:7 | ds1       | Down         | dsx1ESF  | NoLoop    | Unknown      | Down       | invalid      |
| 1.1.1:8 | ds1       | Down         | dsx1ESF  | NoLoop    | Unknown      | Down       | invalid      |
| ...     |           |              |          |           |              |            |              |



**Note** You cannot add a port directly on a SONET or SDH line; you must channelize it first.

- Step 4** Verify that the Line State, or Admin Status is up (active). If necessary, use the **upln** or **uppath** commands to bring up the line or path.
- Step 5** Verify that the line/path and port number you want to use is not already configured. To display a list of the configured ports on the card, enter the **dsports** command.

The **dsports** command shows the number of all existing ports in the *ifNum* (interface number) column. When you add a port, you must specify a unique port number on the card. For example, if port number 2 is assigned to line 1.1 (bay 1, line 1), you cannot use port 2 on any other line on that card.

**Step 6** Enter the **addport** command as follows to add a Frame Relay port to an active line or path.

```
M8850_SF.9.MPSM155 [FR].a > addport <ifNum> <path> <portType> <sctId>
[-dlciLen <dlciLen>] [-flags <portFlagsBetweenFrames>] [-rat <PortEqueueServiceRatio>]
[-csum <checksum>] [-oversub <overSubscribeEnable>] [-lmiSig <lmiSigType>]
[-asynUpdt <updateType>] [-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>] [-n391 <n391Value>]
[-n392 <n392Value>] [-n393 <n393Value>]
[-ds0speed <ds0speed>] [-ds0beg <ds0beg>] [-ds0num <ds0num>]
[-fragEnable <fragEnable>] [-fragSize <fragSize>] [-hdlcinv <hdlcinv>]
```

Table 4-2 lists and describes the keywords and arguments for adding a logical port to a physical line by means of the addport command.

**Table 4-2 Arguments for the addport Command**

| Argument        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i>    | Specifies the interface number (port number) of the port you are adding. <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 4-499</li> <li>MPSM-T3E3-155 range: 4-1003</li> </ul> <p><b>Note</b> Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>path_num</i> | Identifies the line or path on which to add the port: <ul style="list-style-type: none"> <li>DS1/E1 or DS3/E3 line: <i>bay.line[:ds1/e1]</i></li> <li>DS3 payload: <i>bay.line[.sts]:[ds1]</i></li> <li>VT payload: <i>bay.line[.sts]:[vtg.vt]</i></li> <li>VT structured: <i>bay.line[.sts]:[tug3.vtg.vt]</i></li> </ul> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4(VT15) or 1-3(VT2)</p> <p><b>Note</b> Use the <b>dsppaths</b> command to see the path numbers for all available paths. Use the <b>dsplns</b> command to see line numbers for all available lines.</p> <p><b>Note</b> On a BNC-3-T3 or BNC-3-E3 back card, you can add a port on a physical line, or on a path. On an SFP-2-155 and the SMB-2-155-EL OC3 back card, you can add a port on a path only.</p> |
| <i>portType</i> | Specifies the type of port: <ul style="list-style-type: none"> <li>1 = Frame Relay Service</li> <li>3 = Frame Forward</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>sctId</i>    | Specifies the number of the Service class template (SCT) for the port:<br>Range: 0–255<br>Default: 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>-dlciLen</b> | Specifies the DLCI header length: <ul style="list-style-type: none"> <li>1 = Two-byte DLCI header</li> <li>2 = Four-byte DLC header (Broadband ports only)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Table 4-2 Arguments for the *addport* Command

| Argument        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-flags</b>   | <p>Specifies the flags between frames:</p> <ul style="list-style-type: none"> <li>• 1 = 1 flag</li> <li>• 2 = 2 flags</li> <li>• 3 = 4 flags</li> <li>• 4 = 8 flags</li> <li>• 5 = 16 flags</li> <li>• 6 = 32 flags</li> <li>• 7 = 64 flags</li> <li>• 8 = 128 flags</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>-rat</b>     | <p>This keyword and argument defines the egress service ratio between the high priority and the low priority queues.</p> <p>Enter the keyword followed by a number that indicates the egress service ratio, in the range from 1 to 15.</p> <ul style="list-style-type: none"> <li>• Enter 1 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis.</li> <li>• The default setting is 1. In this case, the traffic of the CBR and rt-VBR service categories is allocated to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue.</li> </ul> |
| <b>-csum</b>    | <p>Checksum type indicator:</p> <ul style="list-style-type: none"> <li>• 1 = crc16</li> <li>• 2 = crc32</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>-oversub</b> | <p>Oversubscription indicator:</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>-lmiSig</b>  | <p>LMI signaling type indicator:</p> <ul style="list-style-type: none"> <li>• 2 = No Signaling</li> <li>• 3 = StrataLMI</li> <li>• 4 = AnnexAUNI</li> <li>• 5 = AnnexDUNI</li> <li>• 6 = AnnexANNI</li> <li>• 7 = AnnexDNNI</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Table 4-2 Arguments for the *addport* Command

| Argument         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-asynUpdt</b> | <p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> <li>• 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status</li> <li>• 2 = Enable Asynchronous Status Updates</li> <li>• 3 = Enable Unsolicited Full Status</li> <li>• 4 = Enable Asynchronous Status Updates and Unsolicited Full Status</li> </ul> |
| <b>-elmi</b>     | <p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes. Enter a number to enable/disable enhanced LMI on the port.</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable</li> </ul>                                                                                                                                                            |
| <b>-segLmi</b>   | <p>Segmented LMI control:</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>-t391</b>     | <p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 5 to 30.</p>                                                                                                                                                                                                                                                                        |
| <b>-t392</b>     | <p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bidirectional polling is present. Range 5 to 30.</p>                                                                                                  |
| <b>-n391</b>     | <p>N391 counter. This setting establishes the Full Status (status of all PVCs) polling cycle. The user (DTE) sends a Full Report Status Enquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 1 to 255. Default: 6</p>                                                                                                                                                                                                                                                                                                               |
| <b>-n392</b>     | <p>N392 counter. This setting specifies the UNI/NNI error threshold. This is the number of errors during N393 events that will cause an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1 to 10.</p>                                                                                                                                                                                                                                                                                                                                                        |

**Table 4-2 Arguments for the addport Command**

| Argument           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-n393</b>       | N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events will cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could go in and out of an error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the <b>-n392</b> parameter. Range: 1-10. |
| <b>-ds0speed</b>   | Specifies the speed of the DS0 channel: <ul style="list-style-type: none"> <li>• 1 = 56 Kbps</li> <li>• 2 = 64 Kbps.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>-ds0beg</b>     | Specifies the beginning DS0 number: <ul style="list-style-type: none"> <li>• T1 paths: 1- 24</li> <li>• E1MF and E1CRCMF paths: 2-16, 18-32 (17 is reserved)</li> <li>• other E1 paths = 2-32</li> </ul>                                                                                                                                                                                                                                                                                                                                           |
| <b>-ds0num</b>     | Specifies the number DS0 time slots that will follow the beginning DS0: <ul style="list-style-type: none"> <li>• T1 paths: 1- 24</li> <li>• E1MF and E1CRCMF paths: 1-30</li> <li>• other E1 paths: 1-31</li> </ul>                                                                                                                                                                                                                                                                                                                                |
| <b>-fragEnable</b> | Enables or disables fragmentation on the port. <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-fragSize</b>   | Specifies the size of the fragments in bytes: <ul style="list-style-type: none"> <li>• 40</li> <li>• 64</li> <li>• 128</li> <li>• 256</li> <li>• 512</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>-hdlcinv</b>    | Enables/disables HDLC inversion on the port: <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                 |

In the following example, the user adds Frame Relay port 113 to DS1 path 1.1.1:3, using the default SCT:

```
M8850_SF.9.MPSM155 [FR] .a > addport 113 1.1.1:3 1 0
```

- Step 7** Enter the **dsports** command to verify that the port you added appears in the *ifNum* (interface number) column. The following example confirms the addition of port 113:

```
M8850_SF.9.MPSM155[FR].a > dsports
ESR: Egress queue Service Ratio
```

| If Num | Line/Path Num | Admn Stat | Oper Stat | if Type | SCT Use | DS0 In Start (Num) | Port Speed kbps | ESR | Signaling Type | E LMI St | FRF 12 Frg | MFR Bundle |
|--------|---------------|-----------|-----------|---------|---------|--------------------|-----------------|-----|----------------|----------|------------|------------|
| 113    | 1.1.1:3       | Up        | Up        | FR      | 0       | 1(24)              | 1536            | 1   | None           | Off      | Off        | N/A        |

- Step 8** To view detailed configuration information for the port, enter the **dsport** *<ifNum>* command. The following example shows detailed information for Frame Relay port 113:

```
M8850_SF.9.MPSM155[FR].a > dsport 113
Interface Number : 113
Line Number : 1.1.1:3
MFR bundle Number : N/A
DS0 Speed : unused
DS0 Configuration Bit Map : 1(24)
Admin State : Up
Operational State : Up
Port State : Active
Port Signaling State : No Signaling Failure
Interface Type : Frame Relay
SCT Id : 0/0 =Def
Frame Header Length : Two Bytes
Flags Between Frames : 1
Equeue Service Ratio : 1
Port Speed : 1536 kbps
Checksum type : crc16
Over-subscription : Disabled
Signaling Protocol Type : None
Enhanced LMI : Disabled
FRF 1.2 Support : Disabled
Asynchronous Updates : Disabled
T391 Link Integrity Timer : 10 secs
```

Type <CR> to continue, Q<CR> to stop:

```
T392 Polling Verification Timer : 15 secs
N391 Full Status Polling Counter : 6
N392 Error Threshold : 3
N393 Monitored Event Count : 4
FRF.12 Fragmentation : Disabled
FRF.12 Fragment Size : 64 Bytes
Port HDLC Frame Inversion : Disabled
Number of Partitions : 1
Number of SPVC : 0
```



**Tip** To change the port configuration, enter the **cnfport** command. To delete the port configuration, enter the **delpport** command. You can also activate or deactivate a port using the **upport** and **dnport** commands. For more information about these commands, refer to [Chapter 7, “Command Reference.”](#)



## Partitioning Port Resources Between Controllers

After you add a Frame Relay port, you can define how the port resources are to be used by the PNNI controller. Although the Cisco MGX 8850/8830 software allows you to distribute port resources to multiple controllers, the PNNI controller is the only controller supported on Frame Relay ports in Release 5 of the MPSM-T3E3-155. Therefore, you assign all resources to the PNNI controller. These resources include the following:

- Range of DLCI values
- Maximum percent of bandwidth in the ingress and egress directions
- Maximum number of connections
- Minimum and Maximum DLCI values

You configure partitions to control how these connection resources are distributed among the switch, card, and ports within the Cisco MGX 8850/8830 switch. Without these partitions, two or three busy ports could consume all of the available connections, thereby disabling communication on all other ports.

A partition is automatically added when you add a port. This new partition has the same number as the port. You can change the resource partition configuration with the **cnfpart** command.



### Note

To create additional resource partitions for a port, use the **addpart** command. The partition ID you use when you create the resource partition can be any number in the range from 1 to 255. After you assign a partition ID to any resource partition on the card, you must use the same partition ID for all other resource partitions on that card. Consider using 2 for the partition ID so that it matches the controller ID. If you do likewise on the other cards in your switch, there will be less confusion in managing partitions on different types of cards.

To configure a port resource partition, use the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Enter the **dsports** command to display a list of all logical ports. Determine the port number for which you want to configure resources.



**Note** All port numbers appear in the *ifNum* (interface number) column. The partition number is the same as the interface number for automatically-added partitions.

```
M8850_SF.9.MPSM155 [FR] .a > dsports
ESR: Egress queue Service Ratio
```

| If Num | Line/Path Num | Admn Stat | Oper Stat | if Type | SCT In Use | DS0 Start (Num) | Port Speed kbps | ESR  | Signaling Type | E LMI St | FRF 12 Frg | MFR Bundle |   |
|--------|---------------|-----------|-----------|---------|------------|-----------------|-----------------|------|----------------|----------|------------|------------|---|
| 110    |               | N/A       | Up        | Up      | FR         | 0               | N/A             | 3065 | 1              | None     | Off        | Off        | 1 |
| 113    | 1.1.1:3       | Up        | Up        | FR      | 0          | 1 (24)          | 1536            | 1    | None           | Off      | Off        | N/A        |   |

- Step 3** Enter the **cnfpart** command as follows to create a resource partition.

```
M8850_SF.9.MPSM155 [FR] .a > cnfpart <ifNum> <ctrlNum> [-lcn <available connections>]
[-dlcimn <minDlci>] [-dlcimax <maxDlci>] [-ibw <ingPctBw>] [-ebw <egrPctBw>]
```

Table 4-3 describes the arguments for the **cnfpart** command.

**Table 4-3 Arguments for the cnfpart Command**

| Argument        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i>    | <p>Specifies the interface number (partition number) of the partition to add.</p> <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 1-499</li> <li>MPSM-T3E3-155 range: 1-1003</li> </ul> <p>Identifies the logical interface to which you want to add a resource partition.</p> <p><b>Note</b> Use the <b>dspparts</b> command in the Frame Relay CLI context to see all active partitions.</p>                                                                                                                                                                     |
| <i>ctrlNum</i>  | <p>Specifies a network controller protocol. Enter <b>2</b> to specify the PNNI controller.</p> <p><b>Note</b> Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option <b>2</b>) only. Options <b>1</b> (TAG switching) and <b>3</b> (MPLS) are not supported.</p>                                                                                                                                                                                                                                                                                                 |
| <b>-lcn</b>     | <p>Maximum number of connections.</p> <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 0-2000</li> <li>MPSM-T3E3-155 range: 0-4000</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>-dlcimin</b> | <p>Minimum DLCI value.</p> <ul style="list-style-type: none"> <li>2-byte header range: 0-1023.</li> <li>4-byte header range: 0-8355840, in multiples of 32768.</li> </ul> <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32768:</p> <p>0 = (0 x 32768)<br/> 163840 = (5 x 32768)<br/> 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>                                     |
| <b>-dlcimax</b> | <p>Maximum DLCI value.</p> <ul style="list-style-type: none"> <li>2-byte header range: 0-1023.</li> <li>4-byte header range: 32767-8355840, in multiples of 32768, minus 1.</li> </ul> <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32768 minus 1:</p> <p>32767 = (32768 * 1)-1<br/> 163839 = (32768 * 5)-1<br/> 6520831 = (32768 * 199)-1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p> |
| <b>-ibw</b>     | <p>Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>-ebw</b>     | <p>Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>                                                                                                                                                                                                                                                                                                                                                                                                                              |

The following example changes the maximum number of connections to 1000:

```
M8850_SF.9.MPSM155[FR].a > cnfpart 113 2 -lcn 1000
```

- Step 4** Enter the **dsppart** *<ifNum>* *<ctrlrNum>* command to display the configuration of a particular partition. Replace *<ifNum>* with the interface number, and replace *<ctrlrNum>* with the controller number, as shown in the following example:

The following example shows the output from a **dsppart** command:

```
M8850_SF.9.MPSM155[FR].a > dsppart 113 2
Interface Number : 113
Partition Id : pnni Number of SPVC: 0
Controller Id : 2
Available LCNs : 1000
Min DLCI : 0
Max DLCI : 1023
Ingress Percentage Bandwidth : 100
Egress Percentage Bandwidth : 100
```

## Selecting the Port Signaling Protocol

The default signaling protocol for new Frame Relay ports is *none*.

To change the signaling protocol from the default setting, perform the following steps:

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.
- Step 2** Enter the **dsppnports** command as follows to display a list of PNNI ports available for configuration.

```
M8850_NY.7.PXM45.a > dsppnports
Summary of total connections
(p2p=point to point,p2mp=point to multipoint,SpvcD=DAX spvc,SpvcR=Routed spvc)
Type #Svcc: #Svpc: #SpvcD: #SpvpD: #SpvcR: #SpvpR: #Ctrl #Total:
p2p: 0 0 30 0 0 0 0 30
p2mp: 0 0 0 0 0 0 0 0

 Total(User cons) = 30/50000, Total(Ctrl cons) = 0
 Total=30

Summary of total SPVC endpoints
(P=Persistent, NP=Non-Persistent)
Type #SpvcR-P #SpvcR-NP #SpvpR-P #SpvpR-NP #SpvcD #SpvpD Total
p2p: 0 0 0 0 60 0 60
p2mp: 0 0 0 0 0 0 0
 Total=60

Summary of total active SVC/SPVC intermediate endpoints
Type #Svcc #Svpc #SpvcR #SpvpR Total
p2p: 0 0 0 0 0
p2mp: 0 0 0 0 0
 Total=0

Type <CR> to continue, Q<CR> to stop:
DSPPNPORTS EndPoint Grand Total = 60/100000
Per-port status summary
```

| PortId   | LogicalId | IF status    | Admin status | ILMI state    | #Conns |
|----------|-----------|--------------|--------------|---------------|--------|
| 7.35     | 17251107  | up           | up           | NotApplicable | 0      |
| 7.36     | 17251108  | up           | up           | NotApplicable | 0      |
| 7.37     | 17251109  | up           | up           | NotApplicable | 0      |
| 7.38     | 17251110  | up           | up           | NotApplicable | 0      |
| 11:1.1:1 | 17504257  | provisioning | up           | NotApplicable | 5      |
| 11:1.2:2 | 17504258  | provisioning | up           | NotApplicable | 5      |
| 11:1.3:3 | 17504259  | provisioning | up           | NotApplicable | 5      |
| 11:1.4:4 | 17504260  | provisioning | up           | NotApplicable | 5      |
| 11:1.5:5 | 17504261  | provisioning | up           | NotApplicable | 5      |

Type <CR> to continue, Q<CR> to stop:

| PortId    | LogicalId | IF status    | Admin status | ILMI state    | #Conns |
|-----------|-----------|--------------|--------------|---------------|--------|
| 11:1.6:6  | 17504262  | provisioning | up           | NotApplicable | 5      |
| 11:2.1:7  | 17504263  | provisioning | up           | NotApplicable | 5      |
| 11:2.2:8  | 17504264  | provisioning | up           | NotApplicable | 5      |
| 11:2.3:9  | 17504265  | provisioning | up           | NotApplicable | 5      |
| 11:2.4:10 | 17504266  | provisioning | up           | NotApplicable | 5      |
| 11:2.5:11 | 17504267  | provisioning | up           | NotApplicable | 5      |
| 11:2.6:12 | 17504268  | provisioning | up           | NotApplicable | 5      |

M8850\_NY.7.PXM45.a >

- Step 3** Enter the **dnpport** *<portid>* command to bring down the port you want to configure. Replace the *<portid>* argument in the **dnpport** command using the format *slot[:bay].line[:ifNum]*. The port identification arguments are listed and described in [Table 4-4](#).



**Note** A port is automatically brought up when you add it. Therefore, you must bring down the port before you can change the signaling protocol for that port.

**Table 4-4** Port Identification Arguments

| Argument    | Description                                                                                                                                                                                                                                                                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>slot</i> | Enter the slot number for the card that hosts the port you are configuring.                                                                                                                                                                                                 |
| <i>bay</i>  | Replace the <i>&lt;bay&gt;</i> argument with the value 1 if the line is connected to a back card in the upper bay; replace the <i>&lt;bay&gt;</i> argument with the value 2 if the line is connected to a back card in the lower bay. Note that the bay number is always 1. |

Table 4-4 Port Identification Arguments (continued)

| Argument     | Description                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>line</i>  | Replace the <line> argument with the number that corresponds to the back card port to which the line is connected.                                                                                                                                                                                                                                                              |
| <i>ifNum</i> | An ATM port is also called an interface. Enter a number from 1 to 60 to identify this interface.<br><br>The interface number must be unique on the card to which it is assigned. An ATM port is defined by its slot, bay, line, and interface number. You need not enter a slot number during port configuration because you identify the slot number when you select the card. |

In the following example, the user brings down port 13.5:

```
M8850_NY.7.PXM.a > dnpnport 13.5
```

**Step 4** Enter the **dsppnports** command as shown in the following example to confirm that the specified port is down.

```
M8850_NY.7.PXM45.a > dsppnports
Summary of total connections
(p2p=point to point,p2mp=point to multipoint,SpvcD=DAX spvc,SpvcR=Routed spvc)
Type #Svcc: #Svpc: #SpvcD: #SpvpD: #SpvcR: #SpvpR: #Total:
p2p: 0 0 17 0 0 0 17
p2mp: 0 0 0 0 0 0 0
```

```
Total= 17/50000
```

```
Summary of total SPVC endpoints
(P=Persistent, NP=Non-Persistent)
Type #SpvcR-P #SpvcR-NP #SpvpR-P #SpvpR-NP #SpvcD #SpvpD Total
p2p: 1 0 0 0 34 0 35
p2mp: 0 0 0 0 0 0 0
Total=35
```

```
Summary of total active SVC/SPVC intermediate endpoints
Type #Svcc #Svpc #SpvcR #SpvpR Total
p2p: 0 0 0 0 0
p2mp: 0 0 0 0 0
Total=0
```

```
EndPoint Grand Total = 35/100000
```

```
Type <CR> to continue, Q<CR> to stop:
DSPPNPORTSPer-port status summary
```

| PortId  | LogicalId | IF status    | Admin status | ILMI state    | #Coms |
|---------|-----------|--------------|--------------|---------------|-------|
| 7.35    | 17251107  | up           | up           | NotApplicable | 0     |
| 7.36    | 17251108  | up           | up           | NotApplicable | 0     |
| 7.37    | 17251109  | up           | up           | NotApplicable | 0     |
| 7.38    | 17251110  | up           | up           | NotApplicable | 0     |
| 4:1.1:1 | 17045505  | down         | up           | NotApplicable | 11    |
| 4:1.2:1 | 17045505  | provisioning | up           | NotApplicable | 0     |

```
4:1.2:2 17045506 up up NotApplicable 11
```

**Step 5** Enter the **cnfnpnportsig** command as follows to define the signaling protocol for the specified port.

```
M8850_NY.7.PXM45.a > cnfnpnportsig <portid> -univer none
```

Table 4-4 describes the elements of the *<portid>* argument.



**Tip**

With some CLI commands, you can refer to a port using only the interface number. Other commands require that you enter a complete port identification number, which includes the slot, bay, line, and interface numbers. When entering commands at the PXM card prompt, you always need to specify the complete port identification number. When entering commands at the card prompt, you need enter only the interface number, because the interface number on the card is unique.

In the following example, the user configures an NNI port to use the PNNI Version 1.0 signaling protocol.

```
M8850_NY.7.PXM45.a > cnfnpnportsig 4:1.1:1 -univer none
```

**Step 6** Enter the **upnpport** command as follows to bring up the port you just configured.

```
M8850_NY.7.PXM45.a > upnpport <portid>
```

Replace the *<portid>* argument using the format *slot:bay.line:ifNum*.

Table 4-4 describes the elements of the *<portid>* argument.

**Step 7** Enter the **dsppnports** command to verify that the port you brought up in Step 6 is in the “up” state in the *Admin\_st* column.

**Step 8** Enter the **dsppnport** *<portid>* command as follows to display the configuration of a specific PNNI port. Replace the *<portid>* argument using the format *slot:bay.line:ifNum*.



**Note** Table 4-4 describes the elements of the *<portid>* argument.

```
M8850_NY.7.PXM45.a > dsppnport 4:1.2:2
```

```
Port: 4:1.2:2 Logical ID: 17045506
IF status: up Admin Status: up
UCSM: disable SVC Routing Pri: 8
Auto-config: disable Addr-reg: disable
IF-side: network IF-type: uni
UniType: private Version: none
PassAlongCapab: n/a
Input filter: 0 Output filter: 0
minSvccVpi: 0 maxSvccVpi: 0
minSvccVci: 100 maxSvccVci: 32867
minSvpcVpi: 1 maxSvpcVpi: 0
```

```
(P=Configured Persistent Pep, NP=Non-Persistent Pep, Act=Active)
#Spvc-P: #Spvc-NP: #SpvcAct: #Spvp-P: #Spvp-NP: #SpvpAct:
p2p : 11 0 11 0 0 0
p2mp: 0 0 0 0 0 0
#Svcc: #Svpc: Total:
p2p : 0 0 11
p2mp: 0 0 0
Total: 11
```

## Provisioning and Managing SPVCs

A soft permanent virtual circuit (SPVC), a variant of a permanent virtual circuit (PVC), can be rerouted using the Private Network-to-Network Interface (PNNI) Version 1.0 protocol. Each SPVC has a master and slave endpoint. The master endpoint of the SPVC is responsible for routing and rerouting functions. The slave endpoint of the SPVC is responsible for responding to requests from the master endpoint during connection setup and rerouting. Both endpoints are configured on the switch or switches to which the Frame Relay CPE connects. Such endpoints can be in the same switch or in different switches.

Both PVCs and SPVCs are full-time connections. A PVC uses a predefined circuit path that fails if the path is interrupted for any reason. In contrast to a PVC, if a link along an SPVC path fails, or if that link cannot provide the required bandwidth, the PNNI protocol reroutes that link to maintain the connection and supply the necessary bandwidth for the connection.

The master/slave relationship exists for each SPVC and applies only to that SPVC. For example, you can have one SPVC with a master on Node A and a slave on Node B, and then create another SPVC with the master on Node B and the slave on Node A. It is good practice to distribute the master side of SPVCs among network nodes to distribute route processing functions.

### Preparing to Add SPVCs

Before you can add an SPVC, the following tasks must have been completed:

1. The switch must have a network controller (see the **addcontroller** command in the *Cisco MGX 8800/8900 Series Command Reference, Release 5.2*).
2. A physical line must be active. Use the **upln** command or the Cisco WAN Manager application to bring up a line.
3. A path must be active. Use the **uppath** command or the Cisco WAN Manager application to bring up a path.
4. At least one logical port must exist on the active path. Use the **addport** command or the Cisco WAN Manager application to create the port. If necessary, modify the port through **cnfport**.
5. At least one resource partition must exist on the logical port. A resource partition is automatically added when you add a port. Use **cnfpart** command to modify the configuration for the existing resource partition, or delete the existing partition and enter the **addpart** command to create a new resource partition on the port. The resource partition should be associated with the controller added in Step 1.

You can create two types of SPVCs:

- Single-ended SPVCs
- Double-ended SPVCs

Single-ended SPVCs are defined at the master endpoint and do not require configuration of a slave endpoint. The primary benefit of single-ended SPVCs is that they are easier to configure. After configuration, the master endpoint configures and brings up the slave endpoint. In order for this feature to work correctly, the destination endpoint must support single-ended SPVCs.



#### Note

In this software release for the Cisco MGX 8850/8830, the card supports only the origination of single-ended SPVCs. This means that you can configure master endpoints for single-ended SPVCs that terminate on another card.

Double-ended SPVCs require separate configuration of the master and slave endpoints. The slave endpoint must be configured first because this step generates a slave address that must be entered during master endpoint configuration.

The following sections describe how to configure double-ended connections that have separate slave and master SPVC connections.

## Configuring the Slave Side of SPVCs

If you wish to configure a double-ended SPVC, you must first configure the slave endpoint for the connection. If you are configuring a single-ended SPVC, you need not configure a slave endpoint.

To configure the slave side of a double-ended SPVC, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Enter the **cc** *<slotnumber>* command as follows to start a management session with the card that hosts the slave side of the SPVC connection.

```
mgx8850a.7.PXM45.a > cc <slotnumber>
```

Replace *<slotnumber>* with the number of the slot in which the MPSM card is installed.

- Step 3** Enter the **dspports** command to identify the port to connect. In the following example, port 113 is the one to host the slave endpoint.

```
M8850_SF.9.MPSM155 [FR] .a > dspports
ESR: Egress queue Service Ratio
```

| If Num | Line/Path Num | Admn Stat | Oper Stat | if Type | SCT Use | DS0 (Num) | Port Speed kbps | ESR | Signaling Type | E St | FRF 12 | MFR Bundle |
|--------|---------------|-----------|-----------|---------|---------|-----------|-----------------|-----|----------------|------|--------|------------|
| 110    | N/A           | Up        | Up        | FR      | 0       | N/A       | 3065            | 1   | None           | Off  | Off    | 1          |
| 113    | 1.1.1:3       | Up        | Up        | FR      | 0       | 1(24)     | 1536            | 1   | None           | Off  | Off    | N/A        |

- Step 4** Enter the **addcon** command as follows to define the slave side of the SPVC:

```
mgx8850a.10.MPSM-155 [FR] .a > addcon <ifNum> <dlci> <chanType> <serviceType> <mastership>
<cir>
[-slave <value>] [-slavepersflag <slavepers>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtngprio <Routing Priority>] [-upc <UPC Cnfg>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-prefrte <routeId>] [-directrte <yes/no>]
[-rmbs <remote MBS>] [-cc <OAM CC Cnfg>]
```

Table 4-5 describes the keywords and arguments for the **addcon** command. The local and remote terms used in this table refer to settings for the local port you are configuring and the remote port at the other end of the connection. If you omit an optional argument, a default value for that argument is used for SPVC configuration.



**Caution**

After you create an SPVC connection, you cannot change the SPVC prefix until all SPVC connections have been deleted. The procedure for changing the SPVC prefix is described in the document entitled *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

**Table 4-5 Arguments for the addcon Command**

| Argument           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>ifNum</i>       | Interface number (port number) of the port to connect. <ul style="list-style-type: none"> <li>MPSM-16-T1E1 range: 1-499</li> <li>MPSM-T3E3-155 range: 1-1003</li> </ul> <p><b>Note</b> Use the <b>dsports</b> command in the Frame Relay CLI context to see the port numbers for all active Frame Relay ports.</p>                                                                                                                                                                                                    |
| <i>dlci</i>        | Specifies the Data-Link Connection Identifier. <ul style="list-style-type: none"> <li>2-byte header range: 1-1006 and 1008-1022</li> <li>4-byte header range: 1-8257534 and 8257536-8388607</li> </ul>                                                                                                                                                                                                                                                                                                                |
| <i>chanType</i>    | Specifies the channel type. Enter a number to indicate one of the following channel types: <ul style="list-style-type: none"> <li>1 = frNIW: Frame Relay Network Interworking</li> <li>2 = frSIWtransparent: Service Interworking without any SDU translation</li> <li>3 = frSIWtranslate: Service Interworking with SDU translation</li> <li>5 = frForward: Frame Forwarding</li> <li>6 = frNIWReplace: Frame Relay Network Interworking Replace</li> </ul>                                                          |
| <i>serviceType</i> | Specifies the service type for the connection. Enter a number to indicate one of the following service types: <ul style="list-style-type: none"> <li>1 = highpriority (use cbr1 at ATM endpoints)</li> <li>2 = rtVBR: real-time variable bit rate (use vbr3rt at ATM endpoints)</li> <li>3 = nrtVBR: non-real-time variable bit rate (use vbr3rt at ATM endpoints)</li> <li>5 = uBR: unspecified bit rate (use ubr at ATM endpoints)</li> <li>9 = stdABR: available bit rate (use stdabr at ATM endpoints)</li> </ul> |
| <i>mastership</i>  | Controls whether this end of a connection is a master or slave endpoint. Enter a number to indicate the mastership of the endpoint as follows: <ul style="list-style-type: none"> <li>1 = master</li> <li>2 = slave</li> </ul>                                                                                                                                                                                                                                                                                        |
| <i>cir</i>         | Specifies the CIR for the connection. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps.</li> <li>MPSM-16-T1E1 range: 0-1984000 bps.</li> </ul>                                                                                                                                                                                                                                                                                             |

Table 4-5 Arguments for the *addcon* Command (continued)

| Argument              | Description                                                                                                                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-slave</b>         | Identifies the slave endpoint of the connection, in the following format:<br><i>slave_nsap_address.vpi.vci</i><br><b>Note</b> This parameter is required when you configure a master endpoint.                                                                                                                                               |
| <b>-slavepersflag</b> | Controls whether the endpoint is persistent or non-persistent. Enter a number to indicate the endpoint's persistency as follows: <ul style="list-style-type: none"> <li>• 0 = persistent (default)</li> <li>• 1 = nonpersistent</li> </ul>                                                                                                   |
| <b>-eir</b>           | Specifies the excess information rate for the connection. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps.</li> <li>• MPSM-16-T1E1 range: 0-1984000 bps.</li> </ul>                                                                                            |
| <b>-bc</b>            | Specifies the Burst Commit size for the connection. Range: 0-2097151 bytes<br>The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300.                                                                                                                                                                        |
| <b>-be</b>            | Specifies the Burst Excess size for the connection. Range: 0-2097151 bytes<br>The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300.                                                                                                                                                                        |
| <b>-detag</b>         | Enables or disables Discard Enable Tagging on the connection. This parameter enables or disables tagging of the DE bit on ingress frames as the result of the policing mechanism. Enter a number to enable or disable DE tagging as follows: <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable (default)</li> </ul> |
| <b>-igde</b>          | Enables or disables a connection's response to incoming Discard Enable tags. Enter a number to ignore (disable) or accept (enable) incoming DE tags as follows: <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 2 = disable (default)</li> </ul>                                                                              |
| <b>-fecnmap</b>       | Specifies the mapping between FECN and EFCI for this connection. Enter a number to set the configuration of the FECN map as follows: <ul style="list-style-type: none"> <li>• 1 = mapEFCI</li> <li>• 2 = setEFCIzero (default)</li> </ul>                                                                                                    |
| <b>-demap</b>         | Specifies the mapping between DE and CLP for this connection. Enter a number to set the DE to CLP mapping, as follows: <ul style="list-style-type: none"> <li>• 1 = mapCLP (default)</li> <li>• 2 = setCLPzero</li> <li>• 3 = setCLPone</li> </ul>                                                                                           |

Table 4-5 Arguments for the *addcon* Command (continued)

| Argument         | Description                                                                                                                                                                                                                                                                                                     |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-clpmap</b>   | Specifies the mapping between CLP and DE for this connection. Enter a number to set the CLP to DE mapping, as follows: <ul style="list-style-type: none"> <li>• 1 = mapDE (default)</li> <li>• 2 = setDEzero</li> <li>• 3 = setDEone</li> <li>• 4 = ignoreCLP</li> </ul>                                        |
| <b>-eqsel</b>    | Selects the egress queue for this connection. Enter a number to indicate one of the following options: <ul style="list-style-type: none"> <li>• 1 = highPriority</li> <li>• 2 = lowPriority</li> <li>• 3 = notSupported</li> </ul> <p>The default value depends on the service type.</p>                        |
| <b>-ingut</b>    | Specifies the ingress percent utilization for this connection. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent<br>Default: 100 percent.                                                                              |
| <b>-egut</b>     | Specifies egress percent utilization for this connections. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent<br>Default: 100 percent                                                                                   |
| <b>-egrat</b>    | Specifies the egress service rate. This value is used for CAC to determine if the port can support the connection. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 2400-44209688 bps</li> <li>• MPSM-16-T1E1 range: 2400 and 1984000 bps</li> </ul>                                               |
| <b>-rtngprio</b> | Specifies the routing priority for this connections, in the range 1-15.<br>Default: 8                                                                                                                                                                                                                           |
| <b>-upc</b>      | Enables or disables UPC configuration on the connection. Enter a number to enable/disable UPC configuration on the connection, as follows: <ul style="list-style-type: none"> <li>• 1 = enable (default)</li> <li>• 2 = disable</li> </ul>                                                                      |
| <b>-lpcr</b>     | Specifies the peak cell rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection. <ul style="list-style-type: none"> <li>• MPSM-T3E3-155 range: 10-165787 cps</li> <li>• MPSM-16-T1E1 range: 10-36064 cps</li> </ul> |

Table 4-5 Arguments for the *addcon* Command (continued)

| Argument        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-rpcr</b>    | Specifies the peak cell rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 10-165787 cps</li> <li>MPSM-16-T1E1 range: 10-36064 cps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>-lscr</b>    | Specifies the sustainable cell rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 10-165787 cps</li> <li>MPSM-16-T1E1 range: 10-36064 cps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-rscr</b>    | Specifies the sustainable cell rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 10-165787 cps</li> <li>MPSM-16-T1E1 range: 10-36064 cps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-lmcr</b>    | Specifies the minimum cell rate for available bit rate connections in the local to remote direction. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 10-165787 cps</li> <li>MPSM-16-T1E1 range: 10-36064 cps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>-rmcr</b>    | Specifies the minimum cell rate for available bit rate connections in the remote to local direction. <ul style="list-style-type: none"> <li>MPSM-T3E3-155 range: 10-165787 cps</li> <li>MPSM-16-T1E1 range: 10-36064 cps</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>-prefrte</b> | This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Use the <b>dspprefs</b> command at the PXM card to display preferred routes.<br><br>The following values are valid: <ul style="list-style-type: none"> <li>0: Disassociate a connection from a route (default)</li> <li>1-65535: The preferred route id</li> </ul> <p><b>Note</b> Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Use the <b>dspscons [-rteid &lt;pref rte id&gt; ]</b> command at the PXM card to display all connections associated with a route.</p> <p><b>Note</b> An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p> |

Table 4-5 Arguments for the `addcon` Command (continued)

| Argument                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>-directrte</code> | <p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> <li>• 1 = yes (make the preferred route required)</li> <li>• 0 = no (do not require the connection to take the preferred route)</li> </ul> <p>Default: 0</p>            |
| <code>-rmbs</code>      | <p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range 0-5000000 cells</p>                                                                                                                                                                                                                                                                                                                                                                   |
| <code>cc</code>         | <p>Operations, administration, and maintenance continuity check (OAM CC):</p> <ul style="list-style-type: none"> <li>• 1 = enable</li> <li>• 0 = disable (default)</li> </ul> <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p> |

**Tip**

If you omit one or more of the configuration arguments when entering the `addcon` command, the SPVC connection uses the default values listed in Table 4-5, as appropriate. To override the default value for a given argument, enter the argument with a desired value.

**Note**

Enter the `cnfchanstdabr` command to configure additional ABR arguments. For more information about the `cnfchanstdabr` command, refer to Chapter 7, “Command Reference”

In the following example, the `addcon` command add the slave side of an SPVC connection to Frame Relay port 113, DLCI 200.

```
M8850_SF.9.MPSM155[FR].a > addcon 113 200 1 1 2 1536000
slave endpoint added successfully
slave endpoint id : 47009181000000000164444B61000001091FFF00.224.200
```

- Step 5** Write down the NSAP address displayed when the `addcon` command output is successful. You will need the NSAP address to configure the master side of the SPVC connection.

**Tip**

When you set up the master side of the SPVC, you must enter the slave ATM address reported by the `addcon` command. If you maintain the current session or use the CLI `copy` command to copy the ATM address now, you can use the CLI `paste` command to complete the `addcon` command on the switch that hosts the master side of the SPVC.

- Step 6** Enter the **dspcons** command as follows to verify the addition of the slave side of the SPVC connection. The **dspcons** command displays all information for the SPVCs.

```
M8850_SF.9.MPSM155 [FR] .a > dspcons
record Identifier SrvcType M/S Upld Admn Alarm

 0 113 0000200 High Priority S 00000001 UP Condn(A bit from n/w)
```

- Step 7** Enter the **dspcon** command to view connection details.

```
M8850_SF.9.MPSM155 [FR] .a > dspcon 113 200

Local : NSAP Address vpi vci
(S) 47009181000000000164444B61000001091FFF00 224 200
Remote : NSAP Address vpi vci
(M) 00 0 0

Port Number : 113 DLCI : 200
Conn. Type : frNIW Chan Service Type: High Priority
Conn Service Type: cbr1 Egress Queue Type: highPriority
Admn Status : UP Oper Status : FAILED
Slave Persist : N/A Max Cost : N/A
CIR (bps) : 1536000 BC (bytes) : 5100
BE (bytes) : 5100 FECN Config : setEFCIzero
ChanDEtoCLPmap : mapCLP ChanCLPtoDEmap : mapDE
IngrPercentUtil : 100 EgrPercentUtil : 100
EgrSrvRate (bps) : 1536000 ZeroCirEir (bps) : N/A
DE Tagging : DISABLED IgnoreIncomingDE : DISABLED
Pref Rte Id : 0 Directed Route : NO
Upload : 00000001 Routing Priority : 0
OAM CC Config : DISABLED Statistics : ENABLED
Local Loopback : DISABLED UPC : ENABLED

Type <CR> to continue, Q<CR> to stop:
Local PCR (cps) : 5760 Remote PCR (cps) : 5760
Local SCR (cps) : N/A Remote SCR (cps) : N/A
Local MCR (cps) : N/A Remote MCR (cps) : N/A
 : Remote MBS (cps) : N/A

Xmt Abit State : A equal 0 Rcv Abit State : OFF
Xmt ATM State : Not Sending Rcv ATM State : Not Recving

E-AIS/RDI CONDITIONED CCFAIL IfFail Mismatch LMI-ABIT
NO YES NO NO NO NO

```

- Step 8** Write down the Local PCR, SCR, and MCR values. Depending on the service type, and other factors, you need these values when adding the master endpoint.

## Configuring the Master Side of SPVCs

When you add a master connection, the software checks the configuration at the slave end to be sure the remote connection configuration is compatible. If the local and remote configuration parameters are not compatible, the connection is not added. [Table 4-6](#) shows the connection parameters that are checked when you create a connection.

**Table 4-6 Connection Parameters that Must Match**

| Connection Type  | Parameters Checked | addcon Keyword                 |
|------------------|--------------------|--------------------------------|
| CBR              | PCR                | <b>-lpcr</b>                   |
| VBRrt and VBRnrt | PCR, SCR, MBS      | <b>-lpcr, -lscr, and -lmbs</b> |
| stdABR           | PCR and MCR        | <b>-lpcr and -lmcr</b>         |
| UBR              | PCR                | <b>-lpcr</b>                   |

Use the values you previously recorded when adding the slave connection. Setting these parameters when adding the connection is especially important when connection to non-MPSM cards, where the default connection parameters might be different.

To configure the master side of an SPVC, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Enter the **cc** *<slotnumber>* command as follows to start a management session with the MPSM card that hosts the master side of the SPVC connection.

```
mgx8850a.7.PXM45.a > cc <slotnumber>
```

Replace *<slotnumber>* with the number of the slot in which the MPSM card is installed.

- Step 3** Enter the **addcon** command as follows to define the master side of the SPVC connection.

```
mgx8850a.10.MPSM-155 [FR] .a > addcon <ifNum> <dlci> <chanType> <serviceType> <mastership>
<cir>
[-slave <value>] [-slavepersflag <slavepers>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-egsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtngprio <Routing Priority>] [-upc <UPC Cnfg>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-prefrte <routeId>] [-directrte <yes/no>]
[-rmbs<remote MBS>] [-cc <OAM CC Cnfg>]
```

Table 4-5 lists and describes the keywords and arguments for the **addcon** command.



**Tip** If you omit one or more of the optional arguments when entering the **addcon** command, the connection uses the default values listed in Table 4-5. To override the default value for a given argument, enter the argument with the desired value.

In the following example, the user adds the master side of a double-ended SPVC, specifying the slave NSAP address and slave PCR. Use the values recorded when adding the slave endpoint.

```
M8830_SF.6.MPSM155 [FR] .a > addcon 113 300 1 1 1 1536000 -slave
4700918100000000164444B61000001091FFF00.224.200 -lpcr 5760
master endpoint added successfully
master endpoint id : 47009181000000003094095DF6000001061FFF00.224.300
```

**Step 4** Enter the **dspscons** command as follows to verify the master-side of the new SPVC connection.

```
M8830_SF.6.MPSM155 [FR].a > dspscons
record Identifier Srvctype M/S Upd Admn Alarm

 0 113 0000300 High Priority M 00000001 UP None
```

The **dspscons** command displays all connections for the MPSM card.

**Step 5** Enter the **dspscon** command as follows to display the configuration information for a specific SPVC.

```
M8850_NY.13.MPSM155 [FR].a> dspscon <ifNum> <dlci>
```

Replace the *<ifNum>* argument with the interface or port number of the card. The *<dlci>* argument (see [Table 4-5](#)) establishes the DLCI for the SPVC endpoint.

The following is sample output from the **dspscon** command.

```
M8830_SF.6.MPSM155 [FR].a > dspscon 113 300

Local : NSAP Address vpi vci
(M) 47009181000000003094095DF6000001061FFF00 224 300
Remote : NSAP Address vpi vci
(S) 47009181000000000164444B61000001091FFF00 224 200

Port Number : 113 DLCI : 300
Conn. Type : frNIW Chan Service Type: High Priority
Conn Service Type : cbr1 Egress Queue Type: highPriority
Admn Status : UP Oper Status : OK
Slave Persist : YES Max Cost : -1
CIR (bps) : 1536000 BC (bytes) : 5100
BE (bytes) : 5100 FECN Config : setEFCIzero
ChanDEtoCLPmap : mapCLP ChanCLPtoDEmap : mapDE
IngrPercentUtil : 100 EgrPercentUtil : 100
EgrSrvRate (bps) : 1536000 ZeroCirEir (bps) : N/A
DE Tagging : DISABLED IgnoreIncomingDE : DISABLED
Pref Rte Id : 0 Directed Route : NO
Upload : 00000001 Routing Priority : 8
OAM CC Config : DISABLED Statistics : ENABLED
Local Loopback : DISABLED UPC : ENABLED

Type <CR> to continue, Q<CR> to stop:
Local PCR (cps) : 5760 Remote PCR (cps) : 5760
Local SCR (cps) : N/A Remote SCR (cps) : N/A
Local MCR (cps) : N/A Remote MCR (cps) : N/A
 : Remote MBS (cps) : N/A

Xmt Abit State : A equal 1 Rcv Abit State : OFF
Xmt ATM State : Not Sending Rcv ATM State : Not Recving

E-AIS/RDI CONDITIONED CCFAIL IfFail Mismatch LMI-ABIT
NO NO NO NO NO NO

```

**Step 6** Enter the **cc** command to start a management session with the active PXM card.

```
M8830_SF.6.MPSM155 [FR].a > cc 1

(session redirected)
```



**Step 7** Enter the **dspxon** command to display all connections for the switch.

```
M8830_SF.1.PXM.a > dspxons
```

```
Local Port Vpi.Vci Remote Port Vpi.Vci State Owner Pri Persistency
-----+-----+-----+-----+-----+-----+-----+-----+-----+
6.65535 224 300 Routed 224 200 OK MASTER 8 Persistent
Local Addr: 47.009181000000003094095df6.000001061fff.00
Remote Addr: 47.009181000000000164444b61.000001091fff.00
Preferred Route ID:- Cast Type: P2P
```

## Multilink Frame Relay on the MPSM-T3E3-155

Multilink Frame Relay (MFR) combines multiple individual links into one logical interface, called an MFR bundle. Multilink bundles help bridge the gap between DS1 and DS3 bandwidths, and can increase resiliency because the failure of a link usually does not bring down the whole bundle. In the MPSM-T3E3-155, each link is a T1 path on a channelized DS3 line or path.

The bundle interface serves as the Frame Relay data link, and performs the same functions as a physical Frame Relay interface. The bundle interface is visible to peers, so you configure Frame Relay functionality on the bundle interface. This section describes how to provision Multilink Frame Relay (MFR) services on the MPSM-T3E3-155 card.



### Note

Before you perform the procedures in this section you must first configure the MPSM-T3E3-155 card and lines as described in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#)

## MFR Command Summary

[Table 4-7](#) lists and describes the MFR commands on the MPSM-T3E3-155 card.

**Table 4-7** *MPSM-T3E3-155 Multilink Frame Relay Commands and Descriptions*

| Command                 | Description                                                                      |
|-------------------------|----------------------------------------------------------------------------------|
| <b>addmfrbundle</b>     | Adds the MFR bundle                                                              |
| <b>addmfrlnk</b>        | Adds the MFR link to a MFR bundle                                                |
| <b>addmfrport</b>       | Adds the MFR port and configures the Frame Relay parameters for the MFR bundle   |
| <b>clrmfrbundlecnt</b>  | Clears all of the counts associated with a MFR bundle                            |
| <b>clrmfrbundlecnts</b> | Clears all of the counts associated with all MFR bundles provisioned on the card |
| <b>clrmfrlnkcnt</b>     | Clears the counters associated with a link on a specific MFR bundle              |
| <b>clrmfrlnkcnts</b>    | Clears the counters associated with all links on a specific MFR bundle           |
| <b>cnfmfrbundle</b>     | Modifies the configuration of the MFR bundle                                     |
| <b>cnfmfrlnk</b>        | Configures the MFR link in a MFR bundle                                          |

Table 4-7 MPSM-T3E3-155 Multilink Frame Relay Commands and Descriptions (continued)

| Command                      | Description                                                              |
|------------------------------|--------------------------------------------------------------------------|
| <b>delmfrbundle</b>          | Deletes the MFR bundle                                                   |
| <b>delmfrlnk</b>             | Deletes a specific link belonging to a specific bundle                   |
| <b>dnmfrbundle</b>           | Puts the MFR bundle in administratively DOWN state                       |
| <b>dspmfrbundle</b>          | Displays the configuration of a MFR bundle                               |
| <b>dspmfrbundlealm</b>       | Displays alarm status for a MFR bundle                                   |
| <b>dspmfrbundlealms</b>      | Displays alarm status for all MFR bundles provisioned on the card        |
| <b>dspmfrbundlebucketcnt</b> | Displays the MFR bundle bucket counters                                  |
| <b>dspmfrbundlecnt</b>       | Displays the counters associated with a MFR bundle                       |
| <b>dspmfrbundles</b>         | Displays all of the MFR bundles provisioned on the card                  |
| <b>dspmfrlnk</b>             | Displays the configuration of a MFR link                                 |
| <b>dspmfrlnkalm</b>          | Displays alarm status of all links associated with a specific MFR bundle |
| <b>dspmfrlnkalms</b>         | Displays alarm status of all links associated with a specific MFR bundle |
| <b>dspmfrlnkbucketcnt</b>    | Displays the MFR link bucket counters                                    |
| <b>dspmfrlnkcnt</b>          | Displays the counters associated with a MFR link                         |
| <b>dspmfrlnks</b>            | Displays all links associated with an MFR bundle                         |
| <b>upmfrbundle</b>           | Puts the MFR bundle in administratively UP state                         |

## MFR Features

For information about MFR features, see the [“MPSM-T3E3-155 Card Features”](#) section on page 1-4.

## MFR Restrictions

The MPSM-T3E3-155 has the following restrictions:

- Aggregation of full T1 links only; MFR bundles with n x DS0 links are not supported
- Blending T1 and E1 is not supported
- Two-byte Frame Relay header (for example, 10 bit DLCI) is supported
- Four-byte Frame Relay header for extended addressing is not supported. Frame Relay extended addressing uses a 23-bit DLCI field that enables support for thousands of DLCIs in NNI networks.
- Frame Relay fragmentation is not supported.
- Super Frame (SF) mode is not supported. Only ESF (Extended Super Frame) mode is supported for MFR services.
- MFR is supported on the 3-port channelized T3 back card and 2-port channelized OC-3 back card.
- FRF2.1 Annex 1 is supported on NNI-type bundle interfaces.
- A maximum of 200 DLCIs per bundle is supported.

# Multilink Frame Relay Quick Start Provisioning Procedure

This section provides quick start procedures for provisioning MRF on the MPSM-T3E3-155.

|        | Command                                                                                                           | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>addmfrbundle</b><br>Related commands:<br><br><b>dspmfrbundle</b><br><b>cnfmfrbundle</b><br><b>delmfrbundle</b> | Add a MFR bundle using default parameters. Refer to <a href="#">Creating an MFR Bundle, page 4-36</a> for detailed instructions on adding an MFR bundle.                                                                                                                                                                                                                                                                                                                       |
| Step 2 | <b>cnfmfrbundle</b><br>Related commands:<br><br><b>addmfrbundle</b><br><b>cnfmfrbundle</b><br><b>delmfrbundle</b> | Configure MFR bundle parameters. Refer to <a href="#">Configuring an MFR Bundle, page 4-38</a> for detailed instructions on configuring an MFR bundle.                                                                                                                                                                                                                                                                                                                         |
| Step 3 | <b>addmfrlnk</b><br>Related commands:<br><br><b>cnfmfrlnk</b><br><b>dspmfrlnk</b><br><b>delmfrlnk</b>             | Add links to the MFR bundle. Refer to <a href="#">Adding Links to an MFR Bundle, page 4-39</a> for detailed instructions on adding an MFR link.                                                                                                                                                                                                                                                                                                                                |
| Step 4 | <b>addmfrport</b><br>Related commands:<br><br><b>dspmfrport</b><br><b>cnfrport</b><br><b>delrport</b>             | Add an MFR port. Refer to <a href="#">Adding a Port to the MFR Bundle, page 4-41</a> for detailed instructions on adding an MFR port.                                                                                                                                                                                                                                                                                                                                          |
| Step 5 | <b>cnfpart</b><br>Related commands:<br><br><b>dspparts</b><br><b>dsppart</b>                                      | Optional: Configure trunk resources on the PNNI controller. This step can assign all of the trunk bandwidth to one controller, or it can assign portions of the trunk bandwidth to each controller.<br><br><b>Note</b> A partition is automatically added when you add a port. Use the <b>cnfpart</b> command to change the configuration of a resource partition.<br><br>See the “ <a href="#">Partitioning Port Resources Between Controllers</a> ” section in this chapter. |
| Step 6 | <b>addcon</b><br>Related commands:<br><br><b>cnfcon</b><br><b>dspecon</b><br><b>delcon</b>                        | Add SPVCs for the MFR service. See the <a href="#">Provisioning and Managing SPVCs, page 4-23</a>                                                                                                                                                                                                                                                                                                                                                                              |

# Multilink Frame Relay General Provisioning Procedures

This section contains procedures for provisioning MFR on the MPSM-T3E3-155.



## Note

Both ends of an MFR connection must support MFR, and the MFR configuration on both ends must match.

## Creating an MFR Bundle

The MPSM-T3E3-155 implements MFR service using MFR bundles, which contain one or more serial links. When you add a bundle, the MPSM-T3E3-155 creates the corresponding Frame Relay data link layer interface for the service. After adding a bundle, you can then add MFR links to the bundle.

When you add a bundle using the **addmfrbundle** command, you specify the bundle number and activation class only; all other bundle parameters assume default values. You subsequently configure other bundle parameters using the **cnfmfrbundle** command. For example, after adding a Class C bundle you also need to configure the minimum number of links that must be operational before the bundle is operational.

To create an MFR bundle, perform the following steps:

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** Create an MFR bundle using the **addmfrbundle** command
- ```
M8850_SF.10.MPSM155[FR].a > addmfrbundle <bundleNum> <activationClass>
```

[Table 4-8](#) describes the parameters for the **addmfrbundle** command.

Table 4-8 *addmfrbundle* Command Parameters

Parameter	Description
<i>bundleNum</i>	Bundle Number, range 1-42
<i>activationClass</i>	Bundle activation class: <ul style="list-style-type: none"> • 1=Class A—At least one bundle links must be operational for the MFR Bundle to be operational • 2=Class B—All of the bundle links must be operational for the MFR Bundle to be operational • 3=Class C—Configured number of bundle links must be operational for the MFR Bundle to be operational.

This command creates a MFR bundle with the default configuration shown in [Table 4-9](#).

Table 4-9 MFR Bundle Default Configuration

Parameter	Description
<i>minimumLinks</i>	Specifies the minimum number of active links required for a Class-C MFR bundle to be operational. The default value is 1 link
<i>helloTimer</i>	Specifies the interval in seconds at which to send hello messages. The default is 10 seconds.
<i>ackTimer</i>	Specifies the maximum time period to wait for an acknowledgement message from the far end. The default is 4 seconds.
<i>maxRetry</i>	Specifies maximum number of times to re-try sending a hello message to the far end if an acknowledgement message is not returned. The default is 2 retries.
<i>bundleName</i>	Identifies the near-end bundle. The default bundle name is of the form node.slot.bundle, for example <i>M8850_SF.Slot10.Bundle03</i>

The following example creates MFR bundle 3 with Class A service type using default bundle parameters:

```
M8850_SF.10.MPSM155[FR].a > addmfrbundle 4 3
```

- Step 3** To verify that the MFR bundle has been created, enter the **dspmfrbundle** *<bundleNum>* command, specifying the number of the bundle.

```
M8850_SF.10.MPSM155[FR].a > dspmfrbundle 4
Bundle Number           : 4
Activation Class        : C
Minimum Links           : 1
Admin state             : Up
Oper State              : Down
Hello Timer (seconds)   : 10
Ack Timer (seconds)     : 4
Max Retry Count         : 2
Maximum Bundle Links    : 12
Configured Number of Links : 0
Active Number of Links  : 0
Available Bandwidth     : 0
Near End Bundle Name    : M8850_SF.Slot10.Bundle04
Far End Bundle Name     : <not defined>
```

Configuring an MFR Bundle

When you add an MFR bundle, most of the configuration options are defaults (See [Table 4-9](#)). For example, if you want to add a bundle with a minimum number of links that is greater than one, you have to configure the minimum number of links in this procedure.

To configure an MFR bundle, perform the following steps:

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** If the MFR bundle is administratively up, bring it down by entering the **dnmfrbundle** *<bundleNum>* command.
- Step 3** Configure MFR bundle parameters using the **cnfmfrbundle** command.

```
M8850_SF.9.MPSM155 [FR] .a > cnfmfrbundle -bundle <bundleNum>
[-class <activationclass>] [-minlinks <minimumlinks>]
[-hellotimer <hellotimer>] [-acktimer <acktime>]
[-maxretry <maxretry>] [-bname <bundleName>]
```

[Table 4-10](#) describes the parameters for the **cnfmfrbundle** command.

Table 4-10 *cnfmfrbundle* Command Parameters

Parameter	Description
-bundle	MFR bundle number, range 1-42
-class	Bundle activation class: <ul style="list-style-type: none"> • 1=Class A—At least one bundle links must be operational for the MFR Bundle to be operational • 2=Class B—All of the bundle links must be operational for the MFR Bundle to be operational • 3=Class C—Configured number of bundle links must be operational for the MFR Bundle to be operational
-minlinks	Minimum number of links for Class-C activation class, range 1-12.
-hellotimer	Interval for sending hello messages, range 1-180 seconds
-acktimer	Maximum time period to wait for an acknowledgement from the far end, range 1-10 seconds
-maxretry	Maximum number of retries (Maximum retries), range 1-5 retries.
-bname	Near-end bundle name: A null-terminated string consisting of ASCII characters A-Z, a-z, 0-9 and any printable characters, with a maximum of 49 characters.

In the following example, the user increases the minimum number of links for a Class C MFR bundle to 4 and sets the maximum number of retries to 4.

```
M8850_SF.9.MPSM155 [FR] .a > dnmfrbundle 4
M8850_SF.9.MPSM155 [FR] .a > cnfmfrbundle -bundle 4 -minlinks 4 -maxretry 4
```

- Step 4** Restore the bundle to the administrative up state by entering the **upmfrbundle** *<bundleNum>* command.

- Step 5** To verify MFR bundle configuration, enter the **dspmfrbundle** *<bundleNum>* command, specifying the number of the bundle you want to display.

```
M8850_SF.10.MPSM155 [FR] .a > dspmfrbundle 4
Bundle Number           : 4
Activation Class         : C
Minimum Links           : 4
Admin state              : Up
Oper State               : Down
Hello Timer (seconds)   : 10
Ack Timer (seconds)     : 4
Max Retry Count         : 4
Maximum Bundle Links    : 12
Configured Number of Links : 0
Active Number of Links  : 0
Available Bandwidth     : 0
Near End Bundle Name    : M8850_SF.Slot10.Bundle04
Far End Bundle Name     : <not defined>
```

Adding Links to an MFR Bundle

After you have established and configured an MFR bundle, you can add links to the bundle. Adding a link sends an Add-Link request message to the far-end of the bundle. A link is actively operating in a bundle only after the following conditions are met:

- An Add-Link acknowledgement is received from the Far end for the transmitted Add-Link message.
- An Add-Link request is received from the Far-end.

After both messages are received from the far-end, the MFR link is ready to transmit and receive data. Depending on the Activation Class of the bundle, the Bundle Up Indication is sent by the MFR Bundle layer to the Frame Relay Data Link layer under the following conditions.

- Class A bundles—After receiving link activation confirmation for one link.
- Class B bundles—After receiving link activation confirmation for all links in the bundle.
- Class C bundles—After a predefined number of links in the bundle confirm activation.

To add a link to an MFR bundle, perform the following steps:

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** Bring up the links (paths) that you want to add to the MFR bundle by entering the **uppath** [*-path_filter*] *<path_num>* command. To display all available paths, enter the **dsppaths -all** command.
- Step 3** Add links to the MFR bundle by entering the **addmfrlnk** command. The new link has a default name with the format *node.card.link*.

```
M8850_SF.10.MPSM155 [FR] .a > addmfrlnk <link> <bundleNum>
```

Table 4-11 describes the parameters for the **addmfrlnk** command.

Table 4-11 *addmfrlnk Command Parameters*

Parameter	Description
<i>link</i>	<p>Specifies a DS1 or E1 path:</p> <ul style="list-style-type: none"> DS3 payload: <i>bay.line.sts:ds1</i> VT payload: <i>bay.line.sts:vtg.vt</i> VT structured: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsppaths -all command to display all available paths on the card.</p>
<i>bundleNum</i>	<p>Bundle number, in the range 1-42</p> <p>Note Enter the dspmfrbundles command to display all bundles on the card.</p>

The following example adds link 1.1:11 (bay 1, DS3 1, DS1 11) to bundle 4.

```
M8850_SF.10.MPSM155[FR].a > addmfrlnk 1.1:11 4
```

- Step 4** To verify that the link was added to the MFR bundle, enter the **dspmfrlnk <linkNum>** command, specifying the number of the bundle.

```
M8850_SF.10.MPSM155[FR].a > dspmfrlnk 1.1:11
Link Number           : 1.1:11
Bundle Number         : 4
Link State             : Down
Link Alarm State       : Other
Link Delay (Rtt in msec) : 0
Link Near End Name     : M8850_SF.Slot10.Link11
Link Far End Name      : <not defined>
Link Far End Bundle Name : <not defined>
Link PHY Operational Status : Down
```

Configuring MFR Links

Optionally, reconfigure the near-end name of the MFR link. Links have a default near-end name in the format *node.slot.link*, for example M8850_SF.Slot10.Link11.

To rename a link, perform the following steps.

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** Reconfigure the link by entering the **cnfmfrlnk** command.

```
M8850_SF.10.MPSM155[FR].a > cnfmfrlnk -link <lnkNum> -lname <linkname>
```


Table 4-12 describes the parameters for the **cnfmfrlnk** command.

Table 4-12 *cnfmfrlnk* Command Parameters

Parameter	Description
-link	Specifies the MFR link number: Note Enter the dspmfrlnks command to display all MFR links on the card.
-lname	Near-end link name: A null -terminated string consisting of ASCII characters A-Z, a-z, 0-9 and any printable characters with a maximum of 49 characters.

In the following example, the user changes the MFR link name to M8850_SF.Slot09.Bundle04.Link11.

```
M8850_SF.9.MPSM155[FR].a > cnfmfrlnk -link 1.1.1:1 -lname M8850_SF.Slot09.Bundle04.Link11
```

Step 3 To verify MFR link configuration, enter the **dspmfrlnk <lnkNum>** command.

```
M8850_SF.10.MPSM155[FR].a > dspmfrlnk 1.1:11
Link Number           : 1.1:11
Bundle Number         : 4
Link State             : Down
Link Alarm State      : Other
Link Delay (Rtt in msec) : 0
Link Near End Name    : M8850_SF.Slot09.Bundle04.Link11
Link Far End Name     : <not defined>
Link Far End Bundle Name : <not defined>
Link PHY Operational Status : Down
```

Adding a Port to the MFR Bundle

You need to add a port to an MFR bundle before you can provision SPVCs.

To add a port to an MFR bundle, perform the following steps:

-
- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** Prepare to add a port to the MFR bundle:
- Determine the bundle number on which you will add the port. To display a list of the MFR bundle numbers, enter the **dspmfrbundles** command.
 - Verify that the link and port number you want to use are not already configured. To display a list of the Frame Relay ports already configured on the MPSM-T3E3-155 card, enter the **dspports** command in the Frame Relay service context.

When you add a port, you must specify a port number that is unique on the MPSM-T3E3-155 card. For example, if port number (If Num) 5 is assigned, you cannot use port 5 on any other line or bundle on that MPSM-T3E3-155 card.

Step 3 Add and configure an MFR port for the MFR bundle by entering the **addmfrport** command:

```
M8850_SF.10.MPSM155[FR].a > addmfrport <ifNum> <bundle> <portType> <sct>
[-rat <rat>] [-oversub <oversub>]
[-lmiSig <lmiSigType>] [-asynUpdt <updateType>]
```

```
[-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>]
[-n391 <n391Value>] [-n392 <n392Value>] [-n393 <n393Value>]
```

Table 4-13 lists the parameter descriptions for adding MFR ports.

Table 4-13 *addmfrport Command Parameters*

Parameter	Description
<i>ifNum</i>	A number for the port, in the range 1-1003.
<i>bundleNum</i>	The MFR bundle number, in the range 1-42. Note Enter the dspmfrbundles command to display all MFR bundles on the card.
<i>portType</i>	Type of logical interface (port): <ul style="list-style-type: none"> • 1 = Frame Relay Service • 3 = Frame Forward (not applicable for MFR bundles)
<i>sct</i>	The Service class template (SCT) for the port, range 0–255. Default: 0 Note The port SCT file must exist and be registered on the PXM disk before it is available for use. Enter the PXM dspsects command to view all registered SCT files on the PXM card.
-rat	The egress service ratio of the high priority and the low priority queues, range 0-15. <ul style="list-style-type: none"> • Enter 0 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis. • The default setting is 1. In this case, the traffic of the CBR and rt-VBR service categories is allocated to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue.
-oversub	Oversubscription control: <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-lmiSig	LMI signaling protocol type: <ul style="list-style-type: none"> • 2 = No Signaling (default) • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.

Table 4-13 *addmfrport Command Parameters (continued)*

Parameter	Description
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status (default) • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends status inquiry messages to the network (DCE) every T391 seconds. An error is recorded if a status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 5-30. Default: 10</p>
-t392	<p>T392 timer. This is the polling verification timer. The network (DCE) expects status inquiry messages from the user (DTE) every T392 seconds. If the network does not receive a status inquiry message from the user within T392 seconds and the timer expires, then the network records a missing status inquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bidirectional polling is present. Range 5-30. Default: 15</p>
-n391	<p>N391 counter. This setting establishes the full status (status of all PVCs) polling cycle. The user (DTE) sends a full report status inquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 1- 255. Default: 6</p>

Table 4-13 *addmfrport Command Parameters (continued)*

Parameter	Description
-n392	N392 counter. This setting specifies the UNI/NNI error threshold. This is the number of errors during N393 events that will cause an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1-10. Default: 3
-n393	N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events will cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could go in and out of an error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the -n392 parameter. Range: 1-10. Default: 4

- Step 4** To display a list of all Frame Relay ports configured on the MPSM-T3E3-155 card, enter the **dsports** command in the Frame Relay service context. Port numbers are listed in the ifNum (interface number) column. If you want to view information on a particular port, note the number of that port.

In the following example, the user adds MFR port 4 to bundle number 4 with service class template 0.

```
M8850_SF.10.MPSM155[FR].a > addmfrport 4 4 1 0
```

- Step 5** To verify the port, enter the **dsports** command:

```
M8850_SF.10.MPSM155[FR].a > dsports
ESR: Egress queue Service Ratio
```

If Num	Line/Path Num	Admn Stat	Oper Stat	if Type	SCT Use	DS0 (Num)	Port Speed kbps	ESR	Signaling Type	E LMI St	FRF 12	MFR Bundle
4	N/A	Up	LLDn	FR	0	N/A	1532	1	None	Off	Off	4
11	1.1:1	Up	Up	FR	0	1(24)	1536	1	None	Off	Off	N/A
12	1.1:2	Up	Up	FR	0	1(4)	256	1	None	Off	Off	N/A
13	N/A	Up	Up	FR	0	N/A	6131	1	None	Off	Off	1
21	1.2:1	Up	Up	FR	0	1(24)	1536	1	None	Off	Off	N/A
22	1.2:2	Up	Up	FR	0	1(4)	256	1	None	Off	Off	N/A
23	N/A	Up	Up	FR	0	N/A	6131	1	None	Off	Off	2

Adding SPVCs to MFR Bundles

You create SPVCs for MFR the same way that you create Frame Relay SPVCs. For more information, see the [“Provisioning and Managing SPVCs”](#) section on page 4-23.



Provisioning Multilink PPP Services on MPSM-T3E3-155 and MPSM-16-T1E1

Multilink PPP (MLPPP) combines multiple T1/E1 lines or paths into single logical interface, called an MLPPP bundle. Multilink bundles can bridge the gap between DS1 and DS3 bandwidths in small increments, and increase resiliency because the failure of a single link does not necessarily bring down the bundle. Each link is a T1/E1 line or path, which you can fractionalize down to $N * DS0$.

MLPPP bundles can also utilize PPP Multiplexing (PPPMUX). PPPMUX improves bandwidth utilization by combining small-sized packets into larger frames for transmitting over a the T1/E1 link. This is especially important in the IP-RAN solution because of the small packet sizes encountered.

This chapter describes how to provision Multilink PPP (MLPPP) services on the MPSM-16-T1E1 and MPSM-T3E3-155 cards in the following sections:

- [MLPPP Command Summary](#)
- [MLPPP Quickstart Provisioning](#)
- [MLPPP Provisioning Procedures](#)
- [MLPPP PVC Connections](#)



Note Before you perform the procedures in this section, you must set up the MPSM-16-T1E1 cards and lines from the PXM controller as described in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#) Make sure that you select the appropriate card SCT for the controller that you are using.

MLPPP Command Summary

[Table 5-1](#) lists and describes the MLPPP commands.

Table 5-1 *MLPPP Commands and Descriptions*

Command	Description
addmpbundle	Adds the MLPPP bundle
addppplink	Adds the PPP link to an MLPPP bundle
addpppmux	Enables a PPP multiplexer (MUX) on an MLPPP bundle
clrmppbundlecnt	Clears all the counts associated with an MLPPP bundle

Table 5-1 MLPPP Commands and Descriptions (continued)

Command	Description
clrppplnkent	Clears the PPP link count
clrpppmuxcnt	Clears PPP MUX count
cnfmpbundle	Modifies the configuration of the MLPPP bundle
cnfmpbundleparams	Configures the parameters associated with an MLPPP bundle
cnfppplink	Configures the PPP Link in an MLPPP bundle
cnfpppmux	Configures a PPP MUX on an MLPPP bundle
delmpbundle	Deletes the MLPPP bundle
delppplnk	Deletes a specific link belonging to a specific bundle
delpppmux	Deletes a PPP MUX from an MLPPP bundle
dnmpbundle	Puts the MLPPP bundle in administratively DOWN state
dnppplink	Puts the PPP link in administratively DOWN state
dspmpbundle	Displays the configuration of an MLPPP bundle
dspmpbundlecnt	Displays the counts associated with an MLPPP bundles
dspmpbundleload	Displays the operational load for an MLPPP bundle
dspmpbundleparams	Displays the parameters associated with an MLPPP bundle
dspmpbundles	Displays all of the MLPPP bundles provisioned on the card
dsppplink	Displays the configuration of an PPP link
dsppplinks	Displays all of the PPP links provisioned on the bundle
dsppplnkent	Displays the PPP link count
dsppppmux	Displays PPP MUX information associated with a bundle
dsppppmuxcnt	Displays PPP MUX count information
dsptotals	Display the line, path, group, bundle, link, port and connection totals for the current card.
dspwinpathload	Displays the operational loads for WinPath packet processing engines.
dspwpbundles¹	Displays the assignment of MLPPP bundles to WinPath packet processing engines.
upmpbundle	Puts the MLPPP bundle in administratively UP state
upppplink	Puts the PPP link in administratively DOWN state

1. MPSM-T3E3-155 only

MLPPP Quickstart Provisioning

This section provides quick reference for those who have previously configured MLPPP bundles and connections. MLPPP provisioning consists of two tasks:

- [MLPPP Bundle Configuration Quickstart](#)
- [PVC Configuration Quickstart](#)

MLPPP Bundle Configuration Quickstart

To provision an MLPPP bundle, perform the following steps:

	Command	Comments
Step 1	addmpbundle Related commands: dspmpbundle cnfmpbundle delmpbundle	Create an MLPPP bundle. See Adding an MLPPP Bundle, page 5-4 . The MPSM automatically creates a switch-side link to the backplane for the new bundle.
Step 2	cnfmpbundleparams Related command: dspmpbundleparams	Configure MLPPP bundle parameters. See Adding Links to an MLPPP Bundle, page 5-5 .
Step 3	addppplink Related commands: dsppplink cnfppplink delppplink	Add MLPPP links to the bundle. See Adding Links to an MLPPP Bundle, page 5-5 . Note Before you can add links to a bundle, the links must be up.
Step 4	addpppmux Related commands: dsppppmux cnfpppmux delpppmux	Activate PPP MUX on the bundle. See Adding PPPMUX to an MLPPP Bundle, page 5-9 .

PVC Configuration Quickstart

	Command	Comments
Step 1	switch connection Note: This is an RPM-XF command.	Add a slave PVC connection, for example on the RPM-XF. See Creating a Slave Connection at the RPM-XF .
Step 2	addcon Related commands: dspcons cnfcon delcon	Add a master PVC connection on MPSM-16-T1E1 or MPSM-T3E3-155. See Creating an Master Connection at the MPSM .

MLPPP Provisioning Procedures

This section describes MLPPP restrictions and contains procedures for provisioning MLPPP on an MPSM-16-T1E1 and MPSM-T3E3-155 cards. For information about MLPPP features, see the [MPSM-16-T1E1 Card Features, page 1-7](#) or [MPSM-T3E3-155 Card Features, page 1-4](#).

MLPPP Configuration Guidelines

When configuring MLPPP in your network, keep the following in mind:

- When configuring bundles:
 - The MPSM-16-T1E1 supports a maximum of 16 MLPPP bundles with up to 4 PPP links per bundle.
 - The MPSM-T3E3-155 supports a maximum of 84 MLPPP bundles with up to 6 links per bundle.
- When configuring links:
 - For the MPSM-16-T1E1, links are physical T1/E1 lines.
 - For the MPSM-T3E3-155, links are T1/E1 paths. You cannot add lines to the bundle.
 - PPP links must belong to MLPPP bundles; standalone PPP links are not supported.
 - All PPP links in a MLPPP bundle must have the same bandwidth to fully use each link. If you add links of unequal bandwidth, the bundle bandwidth might be under utilized.
 - The MPSM-16-T1E1 requires that all links in an bundle be in the same range, either 1-8 or 9-16.
 - Only one fractional T1/E1 link per line or path is allowed.
- When configuring fractional T1/E1:
 - For E1 lines, timeslot 0 cannot be used for PPP links.
 - For E1 lines with MF and CRCMF formats, timeslot 0 and 16 cannot be used for PPP links.
 - DS0 ranges for fractional T1/E1 are contiguous

Adding an MLPPP Bundle

You create MLPPP bundles using the **addmpbundle** command. A new bundle is administratively up, but its operational state depends on the state of its member PPP links.

In the IP Radio Access Network (IP-RAN) solution or Evolution Data Optimized (EV-DO) solution, you subsequently provision a PVC link between MPSM and the RPM-XF for each bundle. This PVC connects the MLPPP bundle to a virtual interface on the RPM-XF, which routes the data through an IP network.

To create a bundle, perform the following steps:

-
- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command.
 - Step 3** Enter the **addmpbundle** command as follows to add an MLPPP bundle.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > addmpbundle <bundleNumber> [-mrru <value>]
[-endDisc <value>]
```


Table 5-2 describes the parameters for the **addmpbundle** command.

Table 5-2 *addmpbundle Command Parameters*

<i>bundleNumber</i>	A number that identifies the new bundle. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1-16 MPSM-T3E3-155 range: 1-84
-mrru	Specifies the Max Received Reconstructed Unit (MRRU), in the range 64 - 1524. The default is 1524. After the user adds a link to an MLPPP bundle, the MRRU is sent to the remote end, which notifies the remote end that this link is capable of receiving MLPPP packets.
-endDisc	Describes the bundle endpoint. The value is null terminated string that contains printable ASCII characters, which include A-Z, a-z, and 0-9. Maximum length: 20 characters. The default value is a description of the format <i>Node-Name.SlotNumber.BundleNumber</i> .

The following example shows how to create bundle 2.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > addmpbundle 2
```

Step 4 Verify that the MLPPP bundle is created by entering the **dspmpbundles** command.

The following example displays the new bundle on an MPSM-16-T1E1 card:

```
M8850_LA.29.MPSM16T1E1PPP[FR].a > dspmpbundles
MLPPP  Admin  Oper   Active  Available  Alarm      MUX      AutoBW
Bundle State  State  Links   Bandwidth  Cause     Status    Mode
-----
      2     Up   Down    0         0        No Link  Disable  Enable
```

The following example shows the new bundle on an MPSM-T3E3-155 card:

```
M8850_LA.13.MPSM155PPP[FR].a > dspmpbundles
MLPPP  Admin  Oper   Active  Available  Alarm      MUX      AutoBW  WP
Bundle State  State  Links   Bandwidth  Cause     Status    Mode    Id
-----
      2     Up   Down    0         0        No Link  Disable  Enable  1
```

Adding Links to an MLPPP Bundle

After you create an MLPPP bundle, you can increase the aggregate bandwidth by adding PPP links to the bundle using the **addppplink** command.

MLPPP links come up as follows:

- The link increases the aggregate bandwidth of the bundle only after the link successfully negotiates the MRRU option with the peer (MWR). Links that fail this negotiation remain in alarm.
- For a bundle with one just PPP link, the data PDU sent or received does not include the MLPPP header. This helps conserve bandwidth on single-link bundles, without affecting solutions such as EV-DO (Evolution Data Optimized).

To add links to an MLPPP bundle, perform the following steps:

- Step 1 Establish a configuration session using a username with GROUP1 privileges or higher.
- Step 2 Start a management session with the MPSM card using the **cc** command.
- Step 3 Bring up (activate) the lines or paths that you want to add to the bundle. See [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#) Remember to select the appropriate service class template (SCT) for the controller or controllers that you are using.
- Step 4 Enter the **dspmpbundles** command to view the available MLPPP bundles.
- Step 5 Enter the **addppplink** command as follows to add a PPP link to an MLPPP bundle:

```
mpsm_node1.2.MPSM16T1E1[FR].a > addppplink <link> <bay.line> <bundleNumber> [-mru <value>]
[-lcpTimeout <msec>] [-startDS0 <value>] [-numDS0 <value>] [-ds0speed <mode>]
[-pfcTx <mode>] [-acfcTx <mode>] [-loopCheck <mode>]
```

[Table 5-3](#) describes the parameters for the **addppplink** command.

Table 5-3 *addppplink* Command Parameters

Parameter	Description
<i>link</i>	A number for the PPP link. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84
<i>bay.line</i>	The line or path number of the link. <ul style="list-style-type: none"> • MPSM-16-T1E1 (DS1/E1 line): <ul style="list-style-type: none"> – <i>bay.line</i>, where bay = 1, line = 1-16. <p>Note All links on a bundle must be in the same range of lines, either 1-8 or 9-16</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 (DS1/E1 path): <ul style="list-style-type: none"> – DS3 line: <i>bay.line:ds1</i> – DS3 payload: <i>bay.line.sts:ds1</i> – VT payload : <i>bay.line.sts:vtg.vt</i> – VT structured payload: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsplns or dsppaths -all command to display all available lines or paths on the card.</p>
<i>bundleNumber</i>	The MLPPP bundle number to which you are adding a PPP link. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84 <p>Note Enter the dspmpbundles command to display all MLPPP bundles on the card.</p>
-mru	Maximum Receive Unit, in the range 64-1524. Default: 1500

Table 5-3 *addppplink Command Parameters (continued)*

Parameter	Description
-lcpTimeout	<p>Note The length of time to wait for an echo reply before bringing down LCP. The value is specified in msec, but is rounded down to the nearest 100 msec.</p> <p>Range: 1000-4294967</p> <p>Default: 10000 msec</p>
-startDS0	<p>Specifies a starting DS0 for a fractional T1/E1 link, in the following ranges:</p> <ul style="list-style-type: none"> • T1 line or path: 1 - 24 • E1 line or path: <ul style="list-style-type: none"> – E1 and CRC types: 2 - 32 (timeslot 0 reserved) – MF or CRCMF types: 2 - 16, 18 - 32 (timeslots 0 and 16 reserved) <p>Note This parameter is required for a fractional T1/E1 link.</p>
-numDS0	<p>Specifies the number of DS0s for a fractional T1/E1 link, in the following ranges:</p> <ul style="list-style-type: none"> • T1 line or path: 1- 24 • E1 line or path: <ul style="list-style-type: none"> – E1 and CRC types: 1- 31 (timeslot 0 reserved) – MF or CRCMF types: 1 - 30 (timeslots 0 and 16 reserved) <p>Default: Maximum number of DS0s</p> <p>Note A fractional T1/E1 link has a contiguous set of DS0s.</p>
-ds0speed	<p>Specifies the speed of DS0 channels.</p> <ul style="list-style-type: none"> • 1 = 56K, • 2 = 64K (default)
-pfcTx	<p>Controls the compression of PF in PPP packets transmitted from this end.</p> <ul style="list-style-type: none"> • 1 = enable, PFC is performed if the far end is capable of receiving compressed PF. • 2 = disable, PFC is not performed, even if the far end is capable of receiving compressed PF. <p>Default: 2</p>

Table 5-3 *addppplink* Command Parameters (continued)

Parameter	Description
-acfcTX	<p>Controls the compression of address/control fields in PPP packets transmitted from this end.</p> <ul style="list-style-type: none"> • 1 = enable, ACFC is performed if the far end is capable of receiving compressed address/control fields. • 2 = disable, ACFC is not performed, even if far end is capable of receiving compressed address/control fields. <p>Default: 2</p>
-loopCheck	<p>Enables or disables loopback check. If loopback check is enabled, when the magic number in the incoming echo reply is the same as of this PPP link, then this PPP link assumes that the far end is in loopback and brings down the LCP session.</p> <ul style="list-style-type: none"> • 1 = enabled (default) • 2 = disabled

The following example adds PPP link 5, line 1.5, to bundle 5 on an MPSM-16-T1E1 card.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > addppplink 5 1.5 5
```

Step 6 Add additional links to the bundle, as necessary.

Step 7 Verify the bundle bandwidth using the **dspmpbundle** *<bundleNumber>* command, specifying the desired bundle number.

The following example displays information about bundle 5:

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dspmpbundle 5
Bundle Number           : 5
Admin State              : Up
Oper State               : Up
Alarm Cause              : No Alarm
MRRU                     : 1100
SeqNumFormat             : 24 bit
Fragmentation            : Disable
EndpointDiscrimClass     : Locally Assigned
EndpointDiscriminator    : TestNode.6.1
LinksConfigured          : 1
LinksActive              : 1
RemoteMRRU               : 1100
RemoteEndpDiscrimClass   : Locally Assigned
RemoteEndpDiscriminator  : TestNode.6.1
Configured Bandwidth     : 1344000
Available Bandwidth      : 1344000
```

Adding PPPMUX to an MLPPP Bundle

The PPPMUX feature packs small-sized packets into a larger frame before transmission on a PPP link. This helps conserve bandwidth on the T1/E1 lines because it reduces the number of frames and the overhead of extra frame headers. Before PPPMUX becomes active, it must be enabled on both endpoints of the MLPPP bundle.

To add PPPMUX to a bundle, perform the following steps:

-
- Step 1** Establish a configuration session using a username with GROUP1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command.
 - Step 3** Enter the **dspmpbundles** command to view the available MLPPP bundles.
 - Step 4** Enter the **addpppmux** command as follows to add PPPMUX on an MLPPP bundle.

```
mpsm_node1.2.MPSM16T1E1[FR].a > addpppmux <bundleNumber> [-pid <value>]
[-muxTimer <value>] [-frameLength <value>] [-subFrameLength <value>]
[-subFrameCount <value>]
```

Table 5-4 describes the parameters for the **addpppmux** command.

Table 5-4 *addpppmux Command Parameters*

Parameter	Description
<i>bundleNumber</i>	Specifies the bundle number to configure for PPPMUX. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84 <p>Note Enter the dspmpbundles command to display all MLPPP bundles on the card.</p>
-pid	Specifies the Default Protocol ID, in the range 0 - 65535 Default: 33 (cUDP).
-muxTimer	Specifies the maximum length of time to wait after the multiplexer operation starts before multiplexing begins. Values: 0 (disabled) or 64-4000000 microseconds Default: 600 microseconds
-frameLength	Specifies the maximum length of a multiplexer frame, in the range 1 - 512. Default: 256
-subFrameLength	Specifies the maximum length of a sub-frame, in the range 1 - 512. Default: 64
-subFrameCount	Specifies the maximum number of sub-frames in a multiplex frame, in the range 2 - 15. Default: 15

The following example shows how to add a PPP multiplexer to bundle 5 with a PID of 33, a subframe length of 64, a MUX timer of 600, a subframe count of 15, and a maximum receivable MUXed frame length of 64.

```
U4.5.MPSM16T1E1PPP[FR].a > addpppmux 5 33 64 600 15 64
```

MLPPP PVC Connections

In the PPP mode, the MPSM-16-T1E1 and MPSM-T3E3-155 support PVC connections only, and the MPSM must be the master endpoint. For the IP-RAN solution, the RPM-XF is always the slave endpoint.

This section explains how to create the two endpoints, using the IP-RAN solution as an example:

- [Creating a Slave Connection at the RPM-XF](#)
- [Creating an Master Connection at the MPSM](#)

These procedures presume you have already configured an MLPPP bundle with at least one PPP link. For more information, see [Adding an MLPPP Bundle](#) and [Adding Links to an MLPPP Bundle, page 5-5](#).

Creating a Slave Connection at the RPM-XF

Create a slave endpoint for an ATM PVC with the following characteristics:

- PPPoATM encapsulation
- Real-time or non-real-time variable bit rate service
- Bandwidth (PCR and SCR) that match the bundle bandwidth.
- Frame forwarding channel type

The configuration procedure varies by card, so refer to the appropriate configuration guide for details about cards other than the RPM-XF.

To create a slave connection endpoint at the RPM-XF, perform the following steps:

-
- Step 1** Connect to the RPM-XF in privileged exec mode.
 - Step 2** Configure a switch port, virtual template, and PVC slave connection. For more information about these procedures, see the “Configuring IP-RAN” section in the *Cisco MGX Route Processor Module (RPM-XF) Installation and Configuration Guide*.
 - Step 3** Display the connection information using the **show switch connections vcc <VPI> <VCI>**, using the VPI and VCI you used when creating the PVC.

```
Router#show switch connection vcc 0 102
-----
Alarm state           : conditioned
Local Sub-Interface   : 2
Local VPI             : 0
Local VCI             : 102
Remote NSAP address   : default
Local NSAP address    : 47.009181000000000164444B61.000001011802.00
Remote VPI           : 0
Remote VCI           : 0
Routing Priority      : N/A
Max Cost              : N/A
Preferred Route Id    : N/A
```

```

Directed Route      : N/A
Percent Util       : 100
Remote PCR         : 14491
Remote SCR         : 14491
Remote MBS         : 1024
Local PCR          : 14491
Local SCR          : 14491
Remote Percent Util : 100
Connection Master  : Remote
Slave type         : N/A
Synch Status       : inSynch
Auto Synch         : OFF
Admin Status       : UP
Conn-Id            : 1
Update Count       : 141767194

```

- Step 4** Record the Local NSAP address (removing the decimal points), Local PCR, and Local SCR values. You need these later to configure the MPSM master connection.

Creating an Master Connection at the MPSM

To create a master connection endpoint at an MPSM-16-T1E1 or MPSM-T3E3-155 card, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command.
- Step 3** Add a frame-forwarding master connection between the MPSM card and the other endpoint using the **addcon** command. Only one frame-forwarding PVC can be configured per MLPPP bundle.

```

mpsm_node1.2.MPSM16T1E1 [FR] .a > addcon <ifNum> <dlci> <chanType> <serviceType>
<mastership> <cir>
  [-slave <value>] [-slavepersflag <slavepers>]
  [-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
  [-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
  [-fecnmap <FECN map>] [-demap <DE to CLP map>]
  [-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
  [-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
  [-egrat <Egress Service Rate>]
  [-rtngprio <Routing Priority>] [-upc <UPC Cnfg>]
  [-lpcr <local -> remote PCR>] [-rpcr <remote -> local PCR>]
  [-lscr <local -> remote SCR>] [-rscr <remote -> local SCR>]
  [-lmcr <local -> remote MCR>] [-rmcr <remote -> local MCR>]
  [-prefrte <routeId>] [-directrte {yes|no}]
  [-rmbs <remote MBS>] [-cc <OAM CC Cnfg>]

```

Table 5-5 describes the parameters of the **addcon** command used for MLPPP connections. The unlisted **addcon** parameters apply to other protocols, have fixed values, or are automatically set; you do not need to set them.

Table 5-5 *addcon Command Parameters for the IP-RAN Solution*

Parameter	Description
<i>ifnum</i>	Specifies the interface number (bundle number) of the bundle to connect. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1-16 MPSM-T3E3-155 range: 1-84 <p>Note Enter the dsports command to display the bundle number for all active MLPPP bundles.</p>
<i>dlci</i>	Specifies the data-link connection identifier. Use 1000 for RPM-XF connections.
<i>chanType</i>	Specifies the channel type. The following channel type is valid: <ul style="list-style-type: none"> 5 = frForward: Frame Forwarding
<i>serviceType</i>	Specifies the service type for the connection. Enter a number to indicate one of the following service types: <ul style="list-style-type: none"> 2 = rtVBR: real-time variable bit rate (use vbr3rt at ATM endpoints) 3 = nrtVBR: non-real-time variable bit rate (use vbr3nrt at ATM endpoints)
<i>mastership</i>	Controls whether this end of a connection is a master or slave endpoint. Only master endpoints are allowed. <ul style="list-style-type: none"> 1 = master 2 = slave (not supported)
<i>cir</i>	Specifies the CIR for the connection. <ul style="list-style-type: none"> MPSM-T3E3-155 <ul style="list-style-type: none"> T1 range: 0-9216000 bps (6 T1s) E1 range: 0-11984000 bps (6 E1s) MPSM-16-T1E1 <ul style="list-style-type: none"> T1 range: 0-6144000 bps (4 T1s) E1 range: 0-7936000 bps (4 E1s)
-slave	Identifies the slave-end connection in the format nsap_address.vpi.vci. To find the NSAP address for the IP-RAN solution, use the RPM-XF show switch connection vcc <vpi> <vci> command. Remove all of the decimal points from the NSAP address and then append the vpi and vci of the RPM-XF connection endpoint, separated by decimal points.
-lpcr	Specifies the Local PCR, in the range 10 – 104268 cells per second. Set this to the rpcr value of the slave connection.
-lscr	Specifies the Local SCR, in the range 10 – 104268 cells per second. Set this to the rscr value of the slave connection.

In the following example, an RPM-XF slave connection was previously added. The following command adds a master connection to bundle 5 on the MPSM-16-T1E1.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > addcon 5 1000 5 3 1 6144000 -slave
4700918100000000164444B6100000101180200.0.102 -lpcr 14491 -lscr 14491
master endpoint added successfully
master endpoint id : 4700918100000000164444B610000011B1FFF00.24.1000
```



Note The -slave argument has three parts: NSAP.VPI.VCI. Make sure the NSAP address does not contain decimal points.

Step 4 To verify connections, enter the **dspcon** command. The following example displays the connection of bundle 5 with DLCI 1000.

```
D4.11.MPSM16T1E1PPP[FR].a > dspcon 5 1000
-----
Local      :          NSAP Address          vpi      vci
(M)        4700918100000000107B65F4250000010B1FFF00      8      1000
Remote    :          NSAP Address          vpi      vci
(S)        4700918100000000107B65F42500000109180200      4      2005
-----
Port Number      : 5                      DLCI          : 1000
Conn. Type       : frForward              Chan Service Type: nrtVBR
Conn Service Type : vbr3nrt              Egress Queue Type: lowPriority
Admn Status      : UP                    Oper Status    : OK
Slave Persist    : YES                   Max Cost       : -1
CIR (bps)        : 10000                 BC (bytes)     : 10300
BE (bytes)       : 10300                 FECN Config    : setEFCIzero
ChanDEtoCLPmap  : setCLPzero             ChanCLPtoDEmap : ignoreCLP
IngrPercentUtil  : 100                   EgrPercentUtil : 100
EgrSrvRate (bps) : 10000                 ZeroCirEir (bps) : N/A
DE Tagging       : DISABLED              IgnoreIncomingDE : DISABLED
Pref Rte Id      : 0                     Directed Route  : NO
Upload           : 000001a3              Routing Priority : 8
OAM CC Config    : DISABLED              Statistics      : ENABLED
Local Loopback   : DISABLED              UPC            : ENABLED
-----
Type <CR> to continue, Q<CR> to stop:
Local PCR (cps)  : 25833                  Remote PCR (cps) : 25833
Local SCR (cps)  : 25833                  Remote SCR (cps) : 25833
Local MCR (cps)  : N/A                   Remote MCR (cps) : N/A
                  :                       Remote MBS (cps) : 1024
-----
Xmt Abit State   : A equal 1              Rcv Abit State  : OFF
Xmt ATM State    : Not Sending            Rcv ATM State   : Not Recving
-----
E-AIS/RDI        CONDITIONED  CCFAIL  IfFail  Mismatch  LMI-ABIT
NO               NO          NO      NO      NO        NO
-----
```

Step 5 From the PXM card, you can use the **dspscons** command to view additional information about the master and slave side of the connection.

```
M8850_SF.8.PXM.a > dspscons
Local Port  Vpi.Vci  Remote Port  Vpi.Vci  State  Owner  Pri  Persistency
-----+-----+-----+-----+-----+-----+-----+-----+-----+
27.65535    8 1000    1:1.2:2     0 101    OK    MASTER 8    Persistent
Local Addr: 47.009181000000000164444b61.0000011b1fff.00
Remote Addr: 47.009181000000000164444b61.000001011802.00
Preferred Route ID:-      Cast Type: P2P
```

```
1:1.2:2      0 101    27.65535      8 1000    OK        SLAVE - Persistent
Local Addr: 47.009181000000000164444b61.000001011802.00
Remote Addr: 47.009181000000000164444b61.0000011b1fff.00
Preferred Route ID:- Cast Type: P2P
```



Card Management on MPSM-T3E3-155 and MPSM-16-T1E1

This chapter describes management and test procedures for the Cisco MPSM-T3E3-155 and MPSM-16-T1E1 cards.

- [Managing CLI Sessions](#)
- [Managing Cards](#)
- [Managing Feature Licenses](#)
- [Managing the Card Clock Source](#)
- [Managing Card SCTs](#)
- [Managing Port SCTs](#)
- [Managing Lines](#)
- [Managing Ports](#)
- [Managing Multilink Frame Relay Services](#)
- [Managing Multilink PPP Services](#)
- [Managing Resource Partitions](#)
- [Managing Connections](#)
- [Verifying PNNI Communication](#)
- [Managing IMA Groups](#)
- [Performing Loopback Tests](#)
- [Performing Bit Error Rate Tests](#)
- [Managing MPSM Core Dumps](#)

Managing CLI Sessions

Basic session initialization and management are described in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*, the *Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12*, and the *Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3* documentation.

Table 6-1 describes session management commands supported on the cards. For more information on these commands, see Chapter 7, “Command Reference.”

Table 6-1 Session Management Commands

Command	Description
?	Displays available commands.
Help	
clrscrn	Clears the session window.
timeout	Sets the amount of idle time in a user-session. Default time is 10 minutes.
who	Displays details about the user currently logged into a card.
whoami	

Managing Cards

Basic card initialization and configuration are described in the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*, and the *Cisco MGX 8850 Edge Concentrator Installation and Configuration, Release 1.1.3* documentation.

The following sections describe:

- [Displaying General Card Information](#)
- [Displaying Software Version and Status Information](#)

The following procedures are some of the most common card management commands. For a list of all card management commands, refer to Chapter 7, “Command Reference.”

Displaying General Card Information

To display general information about a card, enter the **dspcd** command, as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM] .a > dspcd
                               Front Card      Back Card
                               -----
Card Type: MPSM-T3E3-155 SFP-2-155
State:           Active                Present
Serial Number:   SAD073504CT          SAD0732038H
Boot FW Rev:     4.9 (23.88) P1        ---
SW Rev:          4.9 (23.88) P1        ---
HW Rev:          02                    04
Orderable Part#: 800-23005-04          800-23170-02
PCA Part#:       73-8597-04            73-8684-02
CLEI Code:       0                    0

SFP Information:
Line FRU Type      Vendor Name      Part #          Rev  Serial #
-----
1.1 SMFSR-1-155-SFP OCP              TRP-03L3I1BCS  ---  2109325
1.2 ---            ---              ---            ---  ---

Product ID:
```

```

Version ID:
Reset Reason: Reset from PXM
Card Summary:

Type <CR> to continue, Q<CR> to stop:
Card SCT Id: 0
Features Enabled: ATM, FRAME RELAY
#Max ATM Conns #ATM Ports #ATM Partitions #ATM SPVCs #ATM SPVPs #ATM SVCs
-----
                4000          0          0          0          0          0
#Max FR Conns #FR Ports #FR Partitions #FR SPVCs
-----
                4000          0          0          0
#IMA Groups #IMA Links
-----
                0          0

FC Operation Mode:  CARD_OPER_MODE_155

M8830_CH.12.MPSM155 [ATM] .a >

```

Displaying Software Version and Status Information

To display information about the boot and runtime software running on a card, enter the **dspversion** command, as shown in the following example:

```

M8830_CH.12.MPSM155 [ATM] .a > dspversion

Image Type      Shelf Type      Card Type      Version      Built On
-----
Runtime         MGX MPSM-T3E3-155  4.9(23.88)P1  Jan 19 2004, 20:54:33
Boot           MGX MPSM-T3E3-155  4.9(23.88)P1  -

```

Managing Feature Licenses

Some features on the MPSM-T3E3-155 and MPSM-16-T1E1 cards are enabled by the use of feature licenses. These feature licenses reside on the PXM processor in a license pool until needed by the card.

The following sections describe:

- [Displaying Feature Licenses](#)
- [Moving MPSM Feature Licenses](#)
- [Allocating MPSM Feature Licenses](#)
- [Managing MPSM Feature License Alarms](#)



Note

To install spare feature licenses into the PXM license pool, transfer feature licenses from one switch to another switch, and rekey feature licenses, refer to the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2* and the *Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12*.

Displaying Feature Licenses

To display the details of feature licenses that are needed, that have been allocated from the PXM license pool, or that have been programmed into the NVRAM of the cards, use the **dsplliccd** command.

In the following example, the **dsplliccd** command shows one multilink feature license programmed into the NVRAM on the card:

```
M8830_CH.12.MPSM155[ATM] .a > dsplliccd
Card License Alarm:          None
Service Module Type:        MPSM-T3E3-155
Service Module Serial Number: SAD073504CT
Provisioning (addcon) Allowed: YES
=====
Needed License Type          Needed Licenses
-----
MultiLink                    1
=====
Allocated License Type       Allocated licenses
-----
MultiLink                    1
=====
Programmed License Type      Programmed licenses
-----

=====
Programmed License Registered: NO
License registration node:    NONE
License registration chassis: NONE

Type <CR> to continue, Q<CR> to stop:
=====

M8830_CH.12.MPSM155[ATM] .a >
```

If a feature license is moved to the PXM license pool, then the *Programmed License Registered* field in the output of the **dsplliccd** command states *YES*. In this example, the multilink license programmed into the NVRAM on the card is not moved to the PXM license pool.

Moving MPSM Feature Licenses

To move feature licenses programmed on cards to the switch license pool on the PXM processor card, use the **movevic** command.

If a feature license is purchased at the same time as the card, that license can be programmed into the NVRAM on the card. When a feature license is programmed on a card, the license is unavailable to that card and all other cards on the switch. To enable use of the programmed feature license, it must be moved from the card and installed in the switch license pool, which is a database on the PXM processor card.

To move feature licenses, perform the following steps:

-
- Step 1** To view the feature licenses that are programmed on the card, enter the **dsplliccd** command:

```
M8830_CH.12.MPSM155[ATM] .a > dsplliccd
Card License Alarm:          None
Service Module Type:        MPSM-T3E3-155
Service Module Serial Number: SAD073504CT
```

```

Provisioning (addcon) Allowed: YES
=====
Needed License Type           Needed Licenses
-----
=====
Allocated License Type       Allocated licenses
-----
1
=====
Programmed License Type      Programmed licenses
-----
MultiLink                    1
=====
Programmed License Registered: NO
License registration node:   NONE
License registration chassis: NONE
=====

```

In this example, the output of the **dsplccd** command shows that one multilink feature license is programmed into the NVRAM on the card.

- Step 2** To move the feature licenses programmed on the card to the switch license pool on the PXM processor card, enter the **moveLIC** command:

```

M8830_CH.12.MPSM155 [ATM] .a > moveLIC
-----
Programmed License Type#Programmed
-----
MultiLink

Do you want to proceed (Yes/No)? y
Card Licenses have been moved to license pool.

```

After the feature licenses are moved from the card and installed in the switch license pool on the PXM processor card, the feature licenses are available for use by the cards installed in that switch.

- Step 3** When feature licenses are moved from the NVRAM on the card to the PXM license pool, the process is also referred to as *registration* of licenses with the switch.

To verify feature license registration into the switch license pool, enter the **dsplccd** command:

```

M8830_CH.12.MPSM155 [ATM] .a > dsplccd
Card License Alarm:          None
Service Module Type:        MPSM8T1E1
Service Module Serial Number: SAG07208RRA
Provisioning (addcon) Allowed: YES
=====
Needed License Type           Needed Licenses
-----
=====
Allocated License Type       Allocated licenses
-----
=====
Programmed License Type      Programmed licenses
-----
MultiLink                    1
=====

```

```

Programmed License Registered:  YES
License registration node:      CH
License registration chassis:   SCA062300GF
=====

```

This example shows that the multilink feature license has been registered, the name of the switch where the license is registered, and the chassis serial number of the switch where the feature license is registered.

- Step 4** Enter the **dsplics** command on the PXM processor card to view the MPSM feature licenses installed in the PXM license pool:

```

M8830_CH.1.PXM.a > dsplics
M8850_SF                      System Rev: 05.00   Aug. 05, 2004 09:12:39 GMT
MGX8850                       Node Alarm: MAJOR
Licensed                      Licenses
Card Type                    Type          Installed  Allocated  Available
-----
MPSM-T3E3-155               MultiLink     1          0          1

```

In this example, one multilink feature license is successfully moved from the card into the PXM license pool.

Allocating MPSM Feature Licenses

To allocate a feature license to an MPSM-T3E3-155 or MPSM-16-T1E1 card, configure the card to use the licensed feature.

For example, to assign a multilink ATM feature license to an MPSM-T3E3-155 card, enter the **addimagrp** command and add an IMA group on the card. If the license pool on the PXM has an available license for that feature and card type, that license is automatically assigned to the card and the feature is successfully configured.

If you try to configure a card to use a feature for which no licenses are available, the configuration attempt fails. After a license is assigned to a card, it is no longer available for use by other cards until it returns to the license pool.

Managing MPSM Feature License Alarms

Feature license alarms can occur at the node level or the slot level of the switch. The following sections describe these alarms:

- [Node License Alarm](#)
- [Slot License Alarms](#)

Node License Alarm

Node license alarms can occur under the following conditions:

- A switch configuration that was saved before licenses were added or transferred to and from the PXM license pool is restored. Any mismatch between the actual license count and the restored license count generates a minor license alarm. To prevent this type of alarm, always save the switch configuration after you move, transfer, or add licenses.

- The switch configuration is restored on a different node, or the Cisco MGX chassis is replaced with another chassis. Because licenses are authorized for a specific backplane serial number, such conditions will cause a mismatch between the physical backplane serial number and serial number recorded in the database.

When a node license alarm is raised, all cards that are using feature licenses go into the slot license alarm state. If no licenses are in use by the cards, no slot license alarms are raised.

To troubleshoot the node license alarm:

- On PXM45 and PXM1E platforms—Use the PXM **dsndalms** command
- On PXM1 platforms—Use the PXM **dspecd** command

Node license alarms are cleared by validating licenses in the license pool. This is done by applying the special Rekey feature license to the node using the **cnflic** command. When pool licenses are validated, any existing slot license alarms are also cleared and normal operation is restored. For the procedure to rekey feature licenses, see the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2* and the *Release Notes for Cisco MGX 8230, Cisco MGX 8250, and Cisco MGX 8850 (PXM1) Switches, Release 1.3.12*.



Note

If the switch is in node license alarm, you must rekey the PXM license pool *before* proceeding with any other license management tasks.

Slot License Alarms

Slot license alarms are raised under the following conditions:

- When a node license alarm is raised, all cards that are using feature licenses go into the slot license alarm state. To clear slot license alarms raised under this condition, rekey the PXM license pool.
- The slot in alarm has acquired or oversubscribed one or more licenses while these licenses were not available in the license pool. To clear slot license alarms raised under this condition, add the required number of licenses to the PXM license pool or release corresponding licenses from other slots so that they become available to the slot in alarm. If slots in alarm have redundancy, you must add licenses to cover both the primary and secondary slots to clear the alarms.

To troubleshoot slot license alarms on the PXM card, use the **dsplicalm** and **dspliced <slot>** commands. To troubleshoot slot license alarms, use the **dspecd** and **dspliced** commands.

For the procedures to rekey feature licenses, recover feature licenses, and add feature licenses to the PXM license pool, see the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.



Note

If the switch is in node license alarm, you must rekey the PXM license pool *before* proceeding with any other license management tasks.

When the switch is in slot license alarm, you have a grace period of 5 days (120 hours) to resolve the alarms. During the first 4 days (96 hours), traps are sent every 24 hours. For the final 24 hours of the grace period, traps are sent every hour of operation. If the alarms do not clear, the following actions are taken:

- An event is logged indicating the expiration of the grace period for a given slot needing licenses.
- A trap is sent hourly indicating the expiration of the grace period.
- The **addcon** command is blocked on the slot in license alarm until the license alarms clear.

When the PXM license pool is rekeyed or licenses are added to the PXM license pool, provisioning is restored and the switch exits the license alarm state.

Managing the Card Clock Source

To configure a switch to receive a clock source on a MPSM-T3E3-155 or MPSM-16-T1E1 card line, perform the following general tasks:

- Bring up and configure a physical line between the card and the node supplying the clock source (see the “[Setting Up Lines](#)” section in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#))
- To configure a SONET line, configure a path on the SONET line. (See the “[Channelizing MPSM-T3E3-155 SONET, SDH, and DS3 \(T3\) Lines](#)” section in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#))
- Create a logical port (subport) on the active physical line to receive the clock signal (To create an ATM port, see the “[Adding ATM Ports](#)” section in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#))



Note If the connection is between two cards of the same type, you must perform this task on both ends of the connection. If the connection is between an MPSM-T3E3-155 card and a different product or card, perform this task only on the MPSM-T3E3-155 or MPSM-16-T1E1 end of the connection, and then refer to the other product or card’s documentation for instructions on configuring the other end of the clock source connection.

- Create a resource partition to define how the port resources on the card are to be used by the PNNI controller. (To create a resource partition on an ATM port, see the “[Partitioning Port Resources on the PNNI Controller](#)” section in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#))



Note If the connection is between two cards of the same type, you must perform this task on both ends of the connection. If the connection is between an MPSM-T3E3-155 card and a different product or card, perform this task only on the MPSM-T3E3-155 or MPSM-16-T1E1 end of the connection, and then refer to the other product or card’s documentation for instructions on configuring the other end of the clock source connection.



Note Frame Relay ports cannot be clock sources for the node.

To configure a clock source after the physical line and port are configured on the MPSM-T3E3-155 or MPSM-16-T1E1 card, perform the following steps:

- Step 1** Establish a configuration session with the active PXM using a username with Group1 privileges or higher.
- Step 2** To establish a primary or secondary card clock source, enter the **cnfclksrc** command at the active PXM as follows:

```
mgx8850a.7.PXM45.a > cnfclksrc <priority> [shelf.] <slot.ifNum>
```



Tip To obtain the correct *portid* specification, use the port ID displayed when you enter the **dsppnports** command.

Table 6-2 describes the arguments for the **cnfclksrc** command.

Table 6-2 Arguments for cnfclksrc Command When Used with MPSM-T3E3-155 or MPSM-16-T1E1 Card

Argument	Value	Description
<i>priority</i>	primary or secondary	Clock source type. Replace the <i>priority</i> argument with the type of clock source for the card. This argument can be either <i>primary</i> or <i>secondary</i> (the latter is the default value).
<i>shelf</i>	1	Shelf identifier (optional). The <i>shelf</i> value is always 1.
<i>slot</i>	MGX 8850 (PXM1E/PXM45): 1 to 6, 9 to 22, and 25 to 32 MGX 8830: 3 to 14	Slot identifier. Identifies the slot number of the card that is to receive the clock signal.
<i>ifnum</i>	1 to 1003	Interface number. Corresponds to the interface number or logical port number which can range from 1 to 1003. The interface number must be previously defined by means of the addport command.

In the following example, the **cnfclksrc** command configures a secondary clock source for subport (logical port) 10 on a card in slot 3.

```
mgx8850a.7.PXM45.a > cnfclksrc secondary 3.10
```

Step 3 To configure a secondary clock source, repeat [Step 2](#) using the appropriate arguments for the secondary clock source.

Managing Card SCTs

The sections that follow describe how to manage card SCTs using the following tasks:

- [Displaying the SCT Assigned to a Card](#)
- [Selecting or Changing a Card SCT](#)
- [Displaying Card SCT Settings](#)

Displaying the SCT Assigned to a Card

To display the SCT assigned to a card, use the following procedure.

-
- Step 1** Establish a configuration session at any user access level.
 - Step 2** Enter the **cc** command to change to the card for which you want to display the SCT number.
 - Step 3** Enter the **dspcd** command.

The **dspcd** report displays a row labeled “Card SCT Id,” which identifies the SCT assigned to the card. In the following example, the Card SCT Id is 0 (the default SCT):

```
M8830_CH.12.MPSM155[FR].a > dspcd
      Front Card          Back Card
      -----
Card Type:      MPSM-T3E3-155      SFP-2-155
State:         Active              Present
Serial Number:  SAD073504CT        SAD0732038H
Boot FW Rev:   4.9(23.88)P1        ---
SW Rev:       4.9(23.88)P1        ---
HW Rev:       02                   04
Orderable Part#: 800-23005-04      800-23170-02
PCA Part#:     73-8597-04          73-8684-02
CLEI Code:    0                    0

SFP Information:
Line FRU Type      Vendor Name      Part #          Rev  Serial #
-----
1.1 SMFSR-1-155-SFP  OCP              TRP-03L3I1BCS  ---  2109325
1.2 ---            ---              ---            ---  ---

Product ID:
Version ID:
Reset Reason: Reset from PXM
Card Summary:

Type <CR> to continue, Q<CR> to stop:
Card SCT Id: 0
Features Enabled: ATM, FRAME RELAY
#Max ATM Conns #ATM Ports #ATM Partitions #ATM SPVCs #ATM SPVPs #ATM SVCs
-----
          4000           2             2             2             0             0
#Max FR Conns #FR Ports #FR Partitions #FR SPVCs
-----
          4000           3             3             2
#IMA Groups #IMA Links
-----
           0             0

FC Operation Mode:  CARD_OPER_MODE_155

M8830_CH.12.MPSM155[FR].a >
```

Selecting or Changing a Card SCT

A card SCT defines the queue parameters for the destination slot based cell queues towards the backplane. The same card SCT may be used for multiple cards of the same card type. The default card SCT is SCT 0.



Note

An SCT must be registered before you can select it for a card or port. The exception to this requirement is the default SCT (SCT 0), which is permanently registered. For instructions on registering SCTs, see *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

To select an SCT for a card, use the following procedure.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Change to the active service module for which you will select or change an SCT by entering the **cc** command.

```
M8830_CH.1.PXM.a > cc 12
(session redirected)
```



Note

In a redundant pair, you must specify the SCT on the active card.

- Step 3** Before you can change the card SCT, all ports on the card must be down. To verify the status of ports on the card, enter the **dspports** command.

```
M8830_CH.12.MPSM155 [ATM].a > dspports
```

ifNum	Line/ Path	Admin State	Oper State	Guaranteed Rate	Maximum Rate	sctID Cnf/InUse	ifType	VPI (VNNI, VUNI)	MINVPI (EVUNI, EVNNI)	MAXVPI (EVUNI, EVNNI)	IA
5	1.1.2	Up	Up	1000	1000	0/ 0 =Def	NNI	0	0	0	NA
10	1.1.1	Up	Up	100	100	0/ 0 =Def	NNI	0	0	0	NA

- Step 4** Bring down all ports that are in the admin state 'up.'

If you are in the ATM CLI context, enter the **dnallports** command to bring down all active ATM ports on the current card, as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM].a > dnallports
dnport/dnallports can disrupt traffic on existing connections.
Use this command only to modify partition parameters or change SCT
Do you want to proceed (Yes/No) ? y
```

If you are in the Frame Relay CLI context, you must bring down each port individually using the **dnport**<ifNum> command. Replace <ifNum> with the number of the active port you want to bring down. In the following example, the user enters the **dnport** <ifNum> three times to bring down three active Frame Relay ports:

```
M8830_CH.12.MPSM155 [FR].a > dnport 20
Traffic loss will result on all frame relay connections on this card.
Do you want to proceed (Yes/No) ? y

M8830_CH.12.MPSM155 [FR].a > dnport 30
Traffic loss will result on all frame relay connections on this card.
Do you want to proceed (Yes/No) ? y
```

```
M8830_CH.12.MPSM155[FR].a > dnport 40
Traffic loss will result on all frame relay connections on this card.
Do you want to proceed (Yes/No) ? y
```

Step 5 To configure the card SCT, enter the **cnfcdsct** command as follows:

```
M8830_CH.12.MPSM155[FR].a > cnfcdsct <scID>
```

Replace *scID* with the number of the SCT that you want to assign to the card.

In the following example, the user assigns the SCT 1 to the current card:

```
M8850_NY.13.MPSM155[ATM].a > cnfcdsct 1
```

Step 6 To verify the SCT change, enter the **dspsct** command.

Step 7 Bring up all of the ports that you brought down in Step 4.

If you are in the ATM CLI context, enter the **upallports** command to bring up all ATM ports at one time, as shown in the following example.

```
M8830_CH.12.MPSM155[ATM].a > upallports
```

If you are in the Frame Relay CLI context, you must activate each port individually with the **upport** <ifNum> command. Replace <ifNum> with the number of the port you want to activate. In the following example, the user enters the **upport** <ifNum> command three times to activate the three Frame Relay ports that were brought down in the example in Step 4:

```
M8830_CH.12.MPSM155[FR].a > upport 20
```

```
M8830_CH.12.MPSM155[FR].a > upport 30
```

```
M8830_CH.12.MPSM155[FR].a > upport 40
```

Step 8 Enter the **dsports** command in the appropriate CLI context to verify that the appropriate ports are up.

To verify that all ATM ports are brought up, enter the **dsports** command in the ATM CLI context:

```
M8830_CH.12.MPSM155[ATM].a > dsports
```

ifNum	Line/Path	Admin State	Oper State	Guaranteed Rate	Maximum Rate	sctID Cnf/InUse	ifType	VPI (VNNI, VUNI)	MINVPI (EVUNI, EVNNI)	MAXVPI (EVUNI, EVNNI)	IA GP
5	1.1.2	Up	Up	1000	1000	0/ 0 =Def	NNI	0	0	0	NA
10	1.1.1	Up	Up	100	100	0/ 0 =Def	NNI	0	0	0	NA

To verify that all Frame Relay ports are brought up, enter the **dsports** command in the Frame Relay CLI context as shown in the following example.

```
M8830_CH.12.MPSM155[FR].a > dsports
```

ifNum	Line/Path	Admin State	Oper State	ifType	SCT id Conf./InUse	FRF 12
Fragmentation						
20	1.1.3:2	Up	Up	Frame Forward	0/ 0 =Def	Disabled
30	1.1.3:3	Up	Up	Frame Forward	0/ 0 =Def	Disabled
40	1.1.3:4	Up	Up	Frame Forward	0/ 0 =Def	Disabled



Note To change to the ATM CLI context, enter the **setctx atm** command. To change to the Frame Relay CLI context, enter the **setctx fr** command.

Displaying Card SCT Settings

To view the card SCT settings, use the following procedure:

Step 1 Establish a CLI management session at any user access level, and enter the **cc** command to change to the card.

Step 2 Enter the **dspcdsct** command:

```
M8830_CH.12.MPSM155 [FR] .a > dspcdsct <gen|cosThr|vcFr> [-units <units>]
```

Select an option to display one of the following SCT configuration reports:

- **gen**—Displays general SCT parameters.
- **costhr**—Displays COSB threshold parameters.
- **vcFr**—displays virtual circuit (VC) Frame Relay parameters.



Note The vcFr SCT is available only in the Frame Relay CLI context. If you are not in the Frame Relay CLI context, enter the **setctx fr** command to change the Frame Relay CLI context before you enter the **dspcdsct vcFr** command.

The following section lists sample reports for each of these options.

To specify the units in time or cells and bytes, enter the **dspcdsct** command with the optional **-units** keyword, followed by one of the following options:

- **time**—Units in time and 0.0001% of max (default)
- **cellbyte**—Units in cells and bytes

The sections that follow display the reports for each of the **dspcdsct** command options.

Card SCT General SCT Parameters—**dspcdsct gen**

When you enter the **dspcdsct gen** command, the following report appears:

```
M8830_CH.12.MPSM155 [FR] .a > dspcdsct gen
```

```

+-----+
| Service Class Template [ 0] : General Parameters |
| Major Version [ 1] : Minor Version [ 0] |
+-----+
+-----+-----+-----+-----+-----+-----+
| SERV-TYPE(HEX) | COSB_NUM | CAC_TYPE | UPC_ENB | GCRA1_PLCY | GCRA2_PLCY |
+-----+-----+-----+-----+-----+-----+
| VSI_DEFAULT( 1) | 1 | BCAC | DISABLED | DISCARD | DISCARD |
| VSI_SIGNAL( 2) | 2 | BCAC | DISABLED | DISCARD | DISCARD |
| VSI_TERM_SIG( 3) | 13 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_CBR1(100) | 2 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt1(101) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt2(102) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt3(103) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRnrt1(104) | 4 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRnrt2(105) | 4 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRnrt3(106) | 4 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_UBR1(107) | 5 | LCN_CAC | DISABLED | DISCARD | DISCARD |

```

```

|   ATMF_UBR2 (108) | 5 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   ATMF_ABR (109) | 4 |   BCAC | DISABLED | DISCARD | DISCARD |
|   ATMF_CBR2 (10a) | 2 |   BCAC | DISABLED | DISCARD | DISCARD |
|   ATMF_CBR3 (10b) | 2 |   BCAC | DISABLED | DISCARD | DISCARD |

```

Type <CR> to continue, Q<CR> to stop:

```

| FR_HIPRIORITY (500) | 6 | LCN_CAC | DISABLED | DISCARD | DISCARD |
| FR_LOPRIORITY (501) | 7 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   FR_ATMCBR (502) | 8 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   FR_ATMVBRrt (503) | 9 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   FR_ATMVBRrnt (504) | 10 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   FR_ATMABR (505) | 11 | LCN_CAC | DISABLED | DISCARD | DISCARD |
|   FR_ATMUBR (506) | 12 | LCN_CAC | DISABLED | DISCARD | DISCARD |

```



Note

The **dspcdsct gen** command displays the same information, regardless of the CLI context of the card.

Card SCT COSB Threshold Parameters—**dspcdsct cosThr**

When you enter the **dspcdsct cosThr** command, the following report appears:

```

M8850_NY.13.MPSM155 [ATM] .a > dspcdsct cosThr
+-----+
| Service Class Template [ 0] : COSB Threshold Parameters |
| Major Version [ 1]          : Minor Version [ 0]         |
+-----+
| COSB | MAX_THR | FR_MAX_THR | DE_THR | FECN_THR |
|      | (uSec)  | (mSec)     | (0.0001%) | (0.0001%) |
+-----+
| 1 | 5700 | 2000 | 6000000 | 6000000 |
| 2 | 30000 | 2000 | 6000000 | 6000000 |
| 3 | 40000 | 2000 | 6000000 | 6000000 |
| 4 | 90000 | 2000 | 6000000 | 6000000 |
| 5 | 90000 | 2000 | 6000000 | 6000000 |
| 6 | 20000 | 2000 | 6000000 | 6000000 |
| 7 | 20000 | 2000 | 6000000 | 6000000 |
| 8 | 20000 | 2000 | 6000000 | 6000000 |
| 9 | 20000 | 2000 | 6000000 | 6000000 |
| 10 | 20000 | 2000 | 6000000 | 6000000 |
| 11 | 20000 | 2000 | 6000000 | 6000000 |
| 12 | 20000 | 2000 | 6000000 | 6000000 |
| 13 | 20000 | 2000 | 6000000 | 6000000 |
| 14 | 20000 | 2000 | 6000000 | 6000000 |
| 15 | 20000 | 2000 | 6000000 | 6000000 |
+-----+
Type <CR> to continue, Q<CR> to stop:
| 16 | 20000 | 2000 | 6000000 | 6000000 |
+-----+
+ cosb_max_threshold is valid for ATM port only +
+ COSB threshold are used only from port sct +
+ COSB threshold are used only from port sct +
+-----+

```



Note

The **dspcdsct cosThr** command displays the same information, regardless of the CLI context of the card.

Card SCT Virtual Circuit Frame Relay Parameters—`dspcdsct vcFr`

When you enter the `dspcdsct vcFr` command, the following report appears:

```
M8830_CH.12.MPSM155 [FR] .a > dspcdsct vcFr
```

```

+-----+
| Service Class Template [0] : Bw and Policing Parameters |
+-----+
| SERV TYPE(DEC) | DE TAG | FECN | DE TO | CLP TO |
| | ENABLE | TO EFCI | CLP MAP | DE MAP |
+-----+
|FR_HIPRIORITY(1280)| DISABLED | SET_ZERO | MAP | MAP |
|FR_LOPPRIORITY(1281)| DISABLED | SET_ZERO | MAP | MAP |
+-----+
| SERV TYPE(DEC) | MAX Th | FECN | DE |
| | MILLSEC | 0.0001% | 0.0001% |
+-----+
|FR_HIPRIORITY(1280)| 3 | 1000000 | 800000 |
|FR_LOPPRIORITY(1281)| 3 | 1000000 | 800000 |
+-----+
BECN and GLB TH not used
+-----+

```



Note

The `dspcdsct vcFr` command is available only in the Frame Relay CLI context. If the card is in the ATM CLI context, enter the `setctx fr` command to change to the Frame Relay CLI context before you enter the `dspcdsct vcFr` command.

Managing Port SCTs

The following sections describe how to manage port SCTs using the following tasks:

- [Displaying the SCT Assigned to a Port](#)
- [Selecting a Port SCT](#)
- [Changing a Port SCT](#)
- [Displaying Port SCT Settings](#)

Displaying the SCT Assigned to a Port

To display the SCT assigned to a port, use the following procedure.

-
- Step 1** Establish a configuration session at any user access level, and enter the `cc` command to change to the appropriate card.
- Step 2** Enter the `dsports` command.

In both the Frame Relay and ATM CLI context, the `dsports` report displays a column labeled “`sctID Cnf/InUse`,” which identifies the SCT assigned to each port.

The following example shows the **dsports** report in the ATM CLI context.

```
M8830_CH.12.MPSM155 [ATM] .a > dsports
ifNum      Line/   Admin  Oper   Guaranteed Maximum   sctID   ifType  VPI  MINVPI  MAXVPI  IMA
           Path    State  State   Rate      Rate   Cnf/InUse  (VNNI, (EVUNI, (EVUNI, GRP
           Path    State  State   Rate      Rate   Cnf/InUse  VUNI)  EVNNI)  EVNNI)
-----
   5       1.1.2  Up     Up     1000     1000   0/ 0 =Def  NNI     0       0       0 N/A
  10       1.1.1  Up     Up     100      100   0/ 0 =Def  NNI     0       0       0 N/A
```

The following example shows the **dsports** report in the Frame Relay CLI context.

```
M8830_CH.12.MPSM155 [FR] .a > dsports
ifNum      Line/Path    Admin      Oper      ifType      SCT id      FRF 12
           Line/Path    State      State     ifType      Conf./InUse
-----
Fragmentation
-----
   20       1.1.3:2    Up         Up        Frame Forward  0/ 0 =Def  Disabled
   30       1.1.3:3    Up         Up        Frame Forward  0/ 0 =Def  Disabled
   40       1.1.3:4    Up         Up        Frame Forward  0/ 0 =Def  Disabled
```

Selecting a Port SCT

A port SCT defines queue parameters that apply to egress queues on a port. You can use the same port SCT for multiple ports. To select an SCT for an ATM port, enter the **addport** command as described in the “Adding ATM Ports” section in Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.” To select an SCT for a Frame Relay port, enter the **addport** command as described in “Provisioning Frame Relay Ports” section in Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1.”



Note

An SCT must be registered before you can select it for a card or port. The exception to this requirement is the default SCT (SCT 0), which is permanently registered. For instructions on registering SCTs, see *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

Changing a Port SCT

To change the SCT assigned to a port, use the following procedure.

- Step 1 Establish a configuration session using a username with Group1 privileges or higher.
- Step 2 Enter the **cc** command to change to the active service module for which you will select or change an SCT.

```
M8830_CH.1.PXM.a > cc 12
```

```
(session redirected)
```



Note

In a redundant pair, you must specify the SCT on the active card.

- Step 3** Ensure that you are in the appropriate CLI context for the port that owns the SCT you want to change. To change an ATM port SCT, you must be in the ATM CLI context. To change a Frame Relay port SCT, you must be in the Frame Relay CLI context.



Note To change to the ATM CLI context, enter the **setctx atm** command. To change to the Frame Relay CLI context, enter the **setctx fr** command.

- Step 4** Enter the **dnport <ifNum>** command to bring down the port whose SCT you want to change. Replace **<ifNum>** with the number of the port you want to bring down.



Note Enter the **dsports** command in the ATM CLI context to see a list of all ATM ports on the current card. Enter the **dsports** command in the Frame Relay CLI context to see a list of all Frame Relay ports on the current card.



Note You cannot change a port SCT while the port is up.

- Step 5** Enter the **cnfport <ifNum> -sct <sct>** command to configure a new SCT on the port. Replace **<ifNum>** with the number of the port whose SCT you are replacing, and enter the **-sct** keyword, followed by the number of the SCT you want to assign to the port.

In the following example, the user assigns SCT 1 to the ATM port 5.

```
M8830_CH.12.MPSM155 [ATM] .a > cnfport 5 -sct 1
```



Note An SCT must be registered before you can select it for a card or port. The exception to this requirement is the default SCT (SCT 0), which is permanently registered. For instructions on registering SCTs, see the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

- Step 6** Enter the **dsport <ifNum>** command to verify that the appropriate SCT has been assigned to the port. Replace **<ifNum>** with the number of the port whose SCT you changed in Step 5. The new SCT associated with the port appears in the “SCT Id” column in the **dsport** command display.

Displaying Port SCT Settings

The MPSM-T3E3-155 and MPSM-16-T1E1 support different SCTs for Frame Relay ports and ATM ports. This section describes the following port SCT management tasks:

- [Displaying ATM Port SCT Settings](#)
- [Displaying Frame Relay Port SCT Settings](#)
- [Displaying Port SCT General Parameters—dsportsct gen](#)
- [Displaying Port SCT Virtual Circuit Threshold Parameters—vcThr](#)
- [Displaying Port SCT COSB Threshold Parameters—cosThr](#)
- [Displaying Port SCT Virtual Circuit Frame Relay Parameters—vcFR](#)

Displaying ATM Port SCT Settings

To view ATM port SCT settings, use the following procedure.

-
- Step 1** Establish a CLI management session at any user access level.
- Step 2** Verify that you are in the ATM CLI context.



Note The current service context appears within brackets next to the switch name in the switch prompt.

If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```

- Step 3** Enter the **dsportsct** command.

```
M8830_CH.12.MPSM155[ATM].a > dsportsct <gen|vcThr|cosThr> <ifNum>
```

Select one of the options to display one of the SCT configuration reports, and replace *<ifNum>* with the number of the port you want to view. [Table 6-3](#) describes the reports for each of these options.

Table 6-3 Options for *dsportsct* Command—ATM CLI Context

Option	Description
gen	Displays general SCT parameters.
vcThr	Displays virtual circuit threshold parameters.
cosThr	Displays COSB threshold parameters.

Displaying Frame Relay Port SCT Settings

To view the Frame Relay port SCT settings, use the following procedure.

-
- Step 1** Establish a CLI management session at any user access level.
- Step 2** Verify that you are in the Frame Relay CLI context.



Note The current service context appears within brackets next to the switch name in the switch prompt.

If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[ATM].a > setctx fr
```

- Step 3** Enter the **dsportsct** command.

```
M8830_CH.12.MPSM155[FR].a > dsportsct <gen|cosThr|vcFR> <ifNum>
```

Select one of the options to display one of the SCT configuration reports, and replace *<ifNum>* with the number of the port you want to view. Table 6-4 describes the reports for each of these options.

Table 6-4 Options for *dsportsct* Command—Frame Relay CLI Context

Option	Description
gen	Displays general SCT parameters.
cosThr	Displays COSB threshold parameters.
vcFR	Displays virtual circuit Frame Relay parameters.

Displaying Port SCT General Parameters—*dsportsct gen*

When you enter the **dsportsct gen** command, the following report appears.

```
M8830_CH.12.MPSM155[FR].a > dsportsct gen 20

+-----+
| Service Class Template [ 1 ] : General Parameters |
| Major Version [ 1 ]           : Minor Version [ 0 ] |
+-----+
| SERV-TYPE(HEX) | COSB_NUM | CAC_TYPE | UPC_ENB | GCRA1_PLCY | GCRA2_PLCY |
+-----+
| VSI_SIGNAL( 2) | 1 | BCAC | DISABLED | DISCARD | DISCARD |
| VSI_TERM_SIG( 3) | 12 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_CBR1(100) | 1 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt1(101) | 2 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt2(102) | 2 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRrt3(103) | 2 | BCAC | DISABLED | DISCARD | SET_DISC_TAGD |
|
| ATMF_VBRnrt1(104) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRnrt2(105) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_VBRnrt3(106) | 3 | BCAC | DISABLED | DISCARD | SET_DISC_TAGD |
|
| ATMF_UBR1(107) | 4 | LCN_CAC | DISABLED | DISCARD | DISCARD |
| ATMF_UBR2(108) | 4 | LCN_CAC | DISABLED | DISCARD | DISCARD |
| ATMF_ABR(109) | 3 | BCAC | DISABLED | DISCARD | DISCARD |
| ATMF_CBR2(10a) | 1 | BCAC | DISABLED | DISCARD | SET_CLP |
|
Type <CR> to continue, Q<CR> to stop:
| ATMF_CBR3(10b) | 1 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_HIPRIORITY(500) | 5 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_LOPRIORITY(501) | 6 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_ATMCBR(502) | 7 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_ATMVBRrt(503) | 8 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_ATMVBRnrt(504) | 9 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_ATMABR(505) | 10 | BCAC | DISABLED | DISCARD | DISCARD |
| FR_ATMUER(506) | 11 | BCAC | DISABLED | DISCARD | DISCARD |
+-----+
```



Note

The **dsportsct gen** command display is the same for Frame Relay and ATM ports. To display general ATM port SCT parameters, you must be in the ATM CLI context. To display general Frame Relay port SCT parameters, you must be in the Frame Relay CLI context.

Table 6-5 describes the SCT general parameters shown in the example.

Table 6-5 SCT General Parameter Descriptions

Parameter	Range	Description
SERV-TYPE	—	Service type (for example, CBR, VBR, ABR) to which the parameters in this table apply (for example, COSB_NUM, CAC_TYPE, UPC_ENB).
COSB_NUM	1 to 16	Class of Service Buffer Number. The number that identifies one of the sixteen CoS buffers. A CoS buffer is a buffer that services connections with similar QoS requirements.
CAC_TYPE	LCN_CAC B_CAC E_CAC	Connection Admission Control. Used by an ATM switch during setup to determine if a connection requested QoS conforms to the guaranteed QoS standards for ATM connections. <ul style="list-style-type: none"> • LCN_CAC: Logical Connection Number CAC • B_CAC: Basic-CAC • E_CAC: Enhanced-CAC
UPC_ENB	ENABLED DISABLED	Usage Parameter Control Enable. Enables or disables GCRA policing functions on the connection.
GCRA-1	1 to 3	Generic Cell Rate Algorithm—Bucket 1. In ATM, an algorithm that defines conformance with respect to the traffic contract of the connection. For each cell arrival, the GCRA determines if the cell conforms to the traffic contract. <p>Note If UPC-Enable is set to disable, this object is not used.</p> <p>Choose one of the following options to indicate how cells that fail the first bucket of the policer should be handled:</p> <ul style="list-style-type: none"> • 1—Discard • 2—Set CLP bit • 3—Set CLP of untagged cells, discard tagged cells
GCRA-2	1 to 3	Generic Cell Rate Algorithm—Bucket 2. In ATM, an algorithm that defines conformance with respect to the traffic contract of the connection. For each cell arrival, the GCRA determines if the cell conforms to the traffic contract. <p>Note If UPC-Enable is set to disable, this object is not used.</p> <p>Choose one of the following options to indicate how cells that fail the second bucket of the policer should be handled:</p> <ul style="list-style-type: none"> • 1—Discard • 2—Set CLP bit • 3—Set CLP of untagged cells, discard tagged cells

Displaying Port SCT Virtual Circuit Threshold Parameters—vcThr

The following report appears when you enter the **dspportset vcThr** command in the ATM CLI context:

```
mpsm_node1.3.MPSM155 [ATM].a > dspportset vcThr 5

+-----+
| Service Class Template [ 0] : VC Threshold Parameters |
| Major Version [ 1]       : Minor Version [ 0]       |
+-----+
| SERV TYPE(DEC) | MAX_CELL | EFCI | CLPlo/EPDl | CLPhi | EPD0 |
|                | THR(uSec)| (0.0001%) | (0.0001%) | (0.0001%) | (0.0001%) |
+-----+
|   ATMF_CBR1( 256) |      5000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt1( 257) |     10000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt2( 258) |     10000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt3( 259) |     10000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRnrt1( 260) |     50000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRnrt2( 261) |     50000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_VBRnrt3( 262) |     50000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_UBR1( 263) |    100000 | 300000 | 300000 | 500000 | 700000 |
|   ATMF_UBR2( 264) |    100000 | 300000 | 300000 | 500000 | 700000 |
|   ATMF_ABR( 265) |     70000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_CBR2( 266) |      5000 | 400000 | 400000 | 600000 | 800000 |
|   ATMF_CBR3( 267) |      5000 | 400000 | 400000 | 600000 | 800000 |
+-----+
| SERV TYPE(DEC) | PKT DISCARD | ABR_CNG_THR |
+-----+
Type <CR> to continue, Q<CR> to stop:
|                | MODE | (0.0001%) |
+-----+
|   ATMF_CBR1( 256) | DISABLED |
|   ATMF_VBRrt1( 257) | DISABLED |
|   ATMF_VBRrt2( 258) | DISABLED |
|   ATMF_VBRrt3( 259) | DISABLED |
|   ATMF_VBRnrt1( 260) | DISABLED |
|   ATMF_VBRnrt2( 261) | DISABLED |
|   ATMF_VBRnrt3( 262) | DISABLED |
|   ATMF_UBR1( 263) | DISABLED |
|   ATMF_UBR2( 264) | DISABLED |
|   ATMF_ABR( 265) | DISABLED |
|   ATMF_CBR2( 266) | DISABLED |
|   ATMF_CBR3( 267) | DISABLED |
+-----+
```



Note

The **dspportset vcThr** command is available only in the ATM CLI context.

Table 6-6 describes the SCT VC Threshold parameters shown in the example.

Table 6-6 SCT VC Threshold Parameter Descriptions

Label	Range and Units	Description
SERV-TYPE	—	The service type (for example, CBR, VBR, ABR) to which the parameters (for example, EFCI, CLP_HI, EPD0) in this table apply.
MAX_CELL THR (uSec)	—	Indicates the MAX number of cells that can be buffered in the cell memory for that VC.

Table 6-6 SCT VC Threshold Parameter Descriptions (continued)

Label	Range and Units	Description
EFCI (.0.0001%)	1000000 = 100%	Indicates the threshold for Explicit Forward congestion Indication (EFCI). EFCI is represented as a percentage of the MAX_CELL THR. A value of 1000000 is equal to 100%.
CLPlo/EPD1 (.0.0001%)	1000000 = 100%	Indicates the minimum delay any CLP1 cell entering this VC encounters. If packet mode is enabled for the VC, then the cells are treated as EPD1 cells. The CLP/EDP1 threshold is represented as a percentage of the MAX_CELL THR. A value of 1000000 is equal to 100%.
CLPhi (.0.0001%)	1000000 = 100%	Indicates the maximum delay any CLP cell entering this VC will encounter. Any cell that encounters a queue latency greater than the CLPhi will be dropped. The CLPhi is represented as a percentage of the MAX_CELL THR. A value of 1000000 is equal to 100%.
EPD0 (.0.0001%)	1000000 = 100%	Indicates the maximum threshold for the EPD0 cells. Any cell that encounters a queue latency greater than the EPD0 threshold will be dropped. The EPD0 is represented as a percentage of the MAX_CELL THR. A value of 1000000 is equal to 100%.

Table 6-7 Class of Service Scaling Table—CoS

Index	Scaling Class Table #1 (CBR)	Scaling Class Table #2 (VBR)	Scaling Class Table #3 (ABR)	Scaling Class Table #4 (UBR)
0	100.00%	100.00%	100.00%	100.00%
1	100.00%	100.00%	100.00%	100.00%
2	100.00%	100.00%	100.00%	100.00%
3	100.00%	100.00%	100.00%	100.00%
4	100.00%	100.00%	100.00%	100.00%
5	100.00%	100.00%	100.00%	100.00%
6	100.00%	100.00%	100.00%	67.00%
7	100.00%	100.00%	100.00%	34.00%
8	100.00%	100.00%	50.00%	20.00%
9	100.00%	50.00%	25.00%	12.00%
10	100.00%	25.00%	12.00%	8.00%
11	100.00%	12.00%	6.00%	4.00%
12	100.00%	6.00%	3.00%	2.50%
13	100.00%	3.00%	1.30%	1.40%

Table 6-7 Class of Service Scaling Table—CoS (continued)

Index	Scaling Class Table #1 (CBR)	Scaling Class Table #2 (VBR)	Scaling Class Table #3 (ABR)	Scaling Class Table #4 (UBR)
14	100.00%	1.30%	0.75%	1.00%
15	100.00%	0.50%	0.50%	0.50%

Table 6-8 Logical Interface Scaling Table

Index	Scaling Class Table #1 (CBR)	Scaling Class Table #2 (VBR)	Scaling Class Table #3 (ABR)	Scaling Class Table #4 (UBR)
0	100.00%	100.00%	100.00%	100.00%
1	100.00%	100.00%	100.00%	100.00%
2	100.00%	100.00%	100.00%	100.00%
3	100.00%	100.00%	100.00%	100.00%
4	100.00%	100.00%	100.00%	100.00%
5	100.00%	100.00%	100.00%	100.00%
6	100.00%	100.00%	100.00%	67.00%
7	100.00%	100.00%	100.00%	34.00%
8	100.00%	100.00%	50.00%	20.00%
9	100.00%	50.00%	25.00%	12.00%
10	100.00%	25.00%	12.00%	8.00%
11	100.00%	12.00%	6.00%	4.00%
12	50.00%	6.00%	3.00%	2.50%
13	25.00%	3.00%	1.30%	1.40%
14	6.00%	1.30%	0.75%	1.00%
15	0.50%	0.50%	0.50%	0.50%

Displaying Port SCT COSB Threshold Parameters—cosThr

When you enter the **dspportsct cosThr** command, the following report appears:

```
M8830_CH.12.MPSM155 [ATM].a > dspportsct cosThr 5
+-----+
| Service Class Template [ 1 ] : COSB Threshold Parameters |
| Major Version [ 1 ]           : Minor Version [ 0 ]       |
+-----+
| COSB | MAX_THR | FR_MAX_THR | DE_THR | FECN_THR |
|      | (uSec)  | (mSec)     | (0.0001%) | (0.0001%) |
+-----+
| 1 | 200000 | 15300000 | 1000000 | 1000000 |
| 2 | 200000 | 15300000 | 1000000 | 1000000 |
| 3 | 1000000 | 15300000 | 1000000 | 1000000 |
| 4 | 1000000 | 15300000 | 1000000 | 1000000 |
| 5 | 200000 | 15300000 | 1000000 | 1000000 |
| 6 | 200000 | 15300000 | 1000000 | 1000000 |
| 7 | 200000 | 15300000 | 1000000 | 1000000 |
| 8 | 200000 | 15300000 | 1000000 | 1000000 |
```

```

| 9 | 200000 | 15300000 | 1000000 | 1000000 |
| 10 | 200000 | 15300000 | 1000000 | 1000000 |
| 11 | 200000 | 15300000 | 1000000 | 1000000 |
| 12 | 200000 | 15300000 | 1000000 | 1000000 |
| 13 | 200000 | 15300000 | 1000000 | 1000000 |
| 14 | 200000 | 15300000 | 1000000 | 1000000 |
| 15 | 200000 | 15300000 | 1000000 | 1000000 |

```

Type <CR> to continue, Q<CR> to stop:

```

+-----+
+ cosb_max_threshold is valid for ATM port only +
+ cosb_fr_*_threshold is valid for FR port only +
+-----+

```

Table 6-9 describes the SCT COSB parameters shown in the example.



Note

The `dspportset cosThr` command display is the same for Frame Relay and ATM ports. To display general ATM port SCT parameters, you must be in the ATM CLI context. To display general Frame Relay port SCT parameters, you must be in the Frame Relay CLI context.

Table 6-9 SCT COSB Threshold Parameter Descriptions

Label	Range and Units	Description
COSB	—	The service type (for example, CBR, VBR, ABR) to which the parameters (for example, EFCL, CLP_HI, EPD0) in this table apply.
MAX_THR (usec)	0–5000000 microseconds	Indicates the maximum delay, in microseconds, that any CLP (0+1) cells entering this COSB might encounter. Any cell that encounters a queue latency greater than the MAX_THR are dropped.
FR_MAX_THR	0–5000000 microseconds	Indicates the maximum threshold on the payload memory that all Frame Relay VCs belonging to the same class of service occupy. The threshold is expressed as a percentage of the MAX_THR. A value of 1000000 is equal to 100%.
DE_THR	1000000 = 100%	Indicates the maximum threshold beyond which all Frame Relay cells marked with DE must be dropped. The threshold is expressed as a percentage of the MAX_THR. A value of 1000000 is equal to 100%.
FECN_THR	1000000 = 100%	Indicates the maximum threshold, in microseconds, beyond which all Frame Relay cells marked with FECN must be dropped. The threshold is expressed as a percentage of the MAX_THR. A value of 1000000 is equal to 100%.

Displaying Port SCT Virtual Circuit Frame Relay Parameters—vcFR

When you enter the **dspportset vcFR** command in the Frame Relay CLI context, the following report appears:

```
M8830_CH.12.MPSM155 [FR] .a > dspportset vcFR 20

+-----+
| Service Class Template [1] : Bw and Policing Parameters |
+-----+
| SERV TYPE(DEC) | DE TAG | FECN | DE TO | CLP TO |
|                 | ENABLE | TO EFCI | CLP MAP | DE MAP |
+-----+
| FR_HIPRIORITY(1280) | ENABLED | SET_ZERO | MAP | MAP |
| FR_LOPRIORITY(1281) | DISABLED | SET_ZERO | MAP | MAP |
+-----+
| SERV TYPE(DEC) | MAX Th | FECN | DE |
|                 | MILLSEC | 0.0001% | 0.0001% |
+-----+
| FR_HIPRIORITY(1280) | 200 | 600000 | 600000 |
| FR_LOPRIORITY(1281) | 341 | 600000 | 600000 |
+-----+
BECN and GLB TH not used
+-----+
```

Table 6-10 describes the SCT COSB parameters shown in the example.



Note

The **dspportset vcFR** command is available only in the Frame Relay CLI context.

Table 6-10 SCT General Parameter Descriptions

Parameter	Range	Description
SERV-TYPE	—	The service type (for example, high priority Frame Relay) to which the parameters in this table apply.
DE TAG ENABLE	ENABLED DISABLED	Enables/disables DE tagging in the ingress direction.
FECN TO EFCI	MAP SET_ZERO	Sets the FECN configuration to one of the following options: <ul style="list-style-type: none"> MAP—The Frame Relay FECN bits are mapped to EFCI bits in ATM cells. SET_ZERO—The FECN bits are ignored, and the EFCI bit is set to zero.

Table 6-10 SCT General Parameter Descriptions (continued)

Parameter	Range	Description
DE TO CLP MAP	MAP SET_ZERO SET_ONE	Sets the DE configuration to MAP, SET_ZERO, or SET_ONE. <ul style="list-style-type: none"> MAP—The Frame Relay DE bits are mapped to CLP bits in ATM cells. SET_ZERO—The DE bits are ignored, and the CLP bit is set to zero. SET_ONE—The DE bits are ignored, and the CLP bit is set to one.
CLP TO DE MAP	MAP SET_ZERO SET_ONE IGNORE_CLP	Sets the CLP configuration to MAP, SET_ZERO, or SET_ONE. <ul style="list-style-type: none"> MAP—The ATM CLP bits are mapped to DE bits in Frame Relay cells. SET_ZERO—The CLP bits are ignored, and the DE bit is set to zero. SET_ONE—The CLP bits are ignored, and the DE bit is set to one. IGNORE—The CLP bits are ignored, and the DE bit remains as it is when it is received.

Managing Lines

Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication,” describes how to bring up (add) and modify MPSM-T3E3-155 and MPSM-16-T1E1 card lines. The sections that follow provide procedures for doing the following tasks:

- [Displaying a List of Lines](#)
- [Displaying the Configuration for One Line](#)
- [Bringing Down a Line](#)
- [Managing Line Alarms](#)

Displaying a List of Lines

To display a list of lines on an a card, enter the **dsplns** command.

In the following example, the user displays lines on a MPSM-T3E3-155 card:

```
M8850_SF.10.MPSM155 [ATM] .a > dsplns
Line Line Line Length OOF AIS Valid Alarm
Num State Type Lpbk (meters) Criteria cBitsCheck Intvl State
-----
1.1 Up dsx3CbitParity NoLoop 0 3Of16Bits Check 96 Clear
1.2 Up dsx3CbitParity NoLoop 0 3Of16Bits Check 96 Clear
1.3 Up dsx3CbitParity NoLoop 0 3Of16Bits Check 96 Critical
```

In the following example, the user displays lines on a MPSM-16-T1E1 card:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dsplns
Line Line      Line      Line      Length      Valid      Alarm
Num  State      Type      Lpbk      (meters)    Intvls     State
-----
 1.1  Up          dsx1ESF   NoLoop    1            96 Clear
 1.2  Up          dsx1ESF   NoLoop    1            96 Clear
 1.3  Up          dsx1ESF   NoLoop    1            96 Clear
 1.4  Up          dsx1ESF   NoLoop    1            96 Clear
 1.5  Up          dsx1ESF   NoLoop    1            96 Clear
 1.6  Up          dsx1ESF   NoLoop    1            96 Clear
 1.7  Down        dsx1ESF   NoLoop    1            0 Clear
 1.8  Up          dsx1ESF   NoLoop    1            96 Clear
 1.9  Up          dsx1ESF   NoLoop    1            96 Critical
1.10  Down        dsx1ESF   NoLoop    1            0 Clear
1.11  Down        dsx1ESF   NoLoop    1            0 Clear
1.12  Down        dsx1ESF   NoLoop    1            0 Clear
1.13  Up          dsx1ESF   NoLoop    1            96 Clear
1.14  Up          dsx1ESF   NoLoop    1            96 Clear
1.15  Down        dsx1ESF   NoLoop    1            0 Clear
```



Note

The line number appears in the *Line Num* column in the format *bay.line*.

Displaying the Configuration for One Line

To display the configuration of one line on a card, enter the **dspln** *<bay.line>* command. Replace *<bay.line>* with the number of the line you want to display.

In the following example, the user displays the configuration for line 1.1 on a MPSM-T3E3-155 card:

```
M8850_SF.10.MPSM155 [ATM] .a > dspln 1.1
Line Number      : 1.1
Admin Status     : Up
Line Type        : dsx3CbitParity
Line Coding      : ds3B3ZS
Line Length(meters) : 0
OOFCriteria     : 3Of16Bits
AIS c-Bits Check : Check
Loopback        : NoLoop
Xmt. Clock source : localTiming
Rcv FEAC Validation : 8 out of 10
Channelized     : Enabled
Alarm Status     : Clear
Number of ATM ports : 1
Number of ATM partitions : 1
Number of ATM SPVC : 1
Number of ATM SPVP : 0
Number of ATM SVC : 0
Number of ATM Sig VC : 0
Number of FR ports : 4
Number of FR Connections : 2
Number of IMA Links : 4
Number of MFR Links : 8

NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```

In the following example, the user displays the configuration for line 1.1 on a MPSM-16-T1E1 card:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dspln 1.1
Line Number      : 1.1
Admin Status     : Up
Line Type        : dsx1ESF
Line Coding      : dsx1B8ZS
Line Length(meters) : 1
Loopback        : NoLoop
Xmt. Clock source : localTiming
Valid Intervals  : 96
Alarm Status     : Clear
Number of ATM ports : 0
Number of ATM partitions : 0
Number of ATM SPVC : 0
Number of ATM SPVP : 0
Number of ATM SVC : 0
Number of ATM Sig VC : 0
Number of FR ports : 1
Number of FR Connections : 1
Number of IMA Links : 0
```

Bringing Down a Line

When a line is not working properly, it generates a line alarm. If you want to suppress the alarm and you do not have time to correct the problem, you can bring down the line. Bringing down the line takes it out of service, so no alarms are generated.



Tip

You can reduce the level of an alarm on a failed line from major to minor by using the **addlnloop** command to place the line in local loopback mode. This does not completely eliminate the alarm, but it does reduce the severity and allow you to preserve the configured resources for that line.

To bring down a line, perform the following steps:

- Step 1** Delete all connections to ports that are associated with the line or paths using the **delcon** command. To display all active connections, use the **dspscons** commands.



Tip

Connections are associated with ports (**dspscons**), and ports are associated with lines or paths. To determine which connections use a line, first determine which ports are configured for that line using the **dsports** command.

- Step 2** Delete all ports that are associated with the line or paths using the **delport** command. To display all active ports, use the **dsports** command. Before deleting ports on a path, bring down the path first using the **dnpath** command.



Tip

When a port is deleted, the resource partition associated with that port is also deleted at the same time. Therefore, it is not necessary to delete the port resource partition before you delete the port.

- Step 3** If the line is channelized, remove the channelization using the **cnfln** command. See [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication”](#).

- Step 4** To deactivate a line, enter the **dnln <bay.line>** command. Replace *<bay.line>* with the number of the line you want to bring down. You can view the available line numbers using the **dsplns** command.

In the following example, the user deactivates line 1.5, which is associated with port 5 and has a connection that uses DLCI 500.

```
M8850_SF.27.MPSM16T1E1[FR] .a > delcon 5 500
Deletion successful
```

```
M8850_SF.27.MPSM16T1E1[FR] .a > delport 5
```

```
M8850_SF.27.MPSM16T1E1[FR] .a > dnln 1.5
```

- Step 5** Enter the **dsplns** command to verify that the line is in the down in the *Line State* column. In the following example, the user verifies that line 1.5 is down.

```
M8850_SF.27.MPSM16T1E1[FR] .a > dsplns
```

Line Num	Line State	Line Type	Line Lpbk	Length (meters)	Valid Intvls	Alarm State
1.1	Up	dsx1ESF	NoLoop	1	96	Clear
1.2	Up	dsx1ESF	NoLoop	1	96	Clear
1.3	Up	dsx1ESF	NoLoop	1	96	Clear
1.4	Up	dsx1ESF	NoLoop	1	96	Clear
1.5	Down	dsx1ESF	NoLoop	1	0	Clear

Managing Line Alarms

MPSM-T3E3-155 and MPSM-16-T1E1 cards generate line alarms when errors occur, as specified in ANSI T1.231. The significance of different types of alarms is listed in [Table 6-11](#).

Table 6-11 Line Errors and Alarms

Error	Alarm Type	Transmit Downstream	Transmit Upstream	Comments
LOS (Loss of Signal)	Red	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send line alarm trap
LOF (Loss of Frame)	Red	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send line alarm trap
AIS (Alarm Indication Signal)	AIS (Yellow) when receiving AIS on the line	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send connection alarm trap
MFAIS (E1 CAS only)	AIS (Yellow) when receiving AIS on the line	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send line alarm trap
RAI (Remote Alarm Indication)	Yellow	—	—	Send line alarm trap
MFRAI (E1 CAS only)	Yellow	—	—	Send line alarm trap
Loss of Multi-frame Sync (E1 CAS only)	Red	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send line alarm trap
Loss of CRC MF Alignment (E1 CRC only)	Red	If a connection exists on the line, AIS OAM cells are transmitted over that connection.	RAI	Send line alarm trap



Note

When the line is in alarm, the line alarm trap is sent. Separate traps are not sent for the ports or for the connections that go into alarm due to the line alarm. Similarly when the port is in alarm, the port alarm trap is sent and separate traps are not sent for the connections that go into alarm due to the port alarm.

Use the commands in [Table 6-12](#) to display, clear, and configure line alarms.

Table 6-12 Line and Path Alarm Commands

Command	Purpose
clradjlnalmnt	Clears the statistical alarms and alarm counters for the adjacent back card in an automatic protection system (APS) configuration.
clrlalmnt	Clears the statistical alarms and alarm counters for a specific line.
clrpathalmnt	Clears all the current alarm counters on the specified path (<i>path_num</i>). All counters are reset to zero.
cnflnalm	Configures statistical line alarms thresholds. You can use this command to make the lines more or less sensitive to alarms.
cnfpathalm	Configures a specified statistical alarm threshold for a specified path (<i>path_num</i>). It also configures the <i>severity</i> of the alarm.
dspadjlnalm	Displays the line alarm status for the adjacent back card.
dspadjlnalmnt	Displays the alarm counters for the adjacent back card.
dsplnalm	Display the line and statistical alarm state for the specified line.
dsplnalms	Displays line and statistical alarms for all lines on the current card.
dsppathalm	Displays the following alarm information for the specified path (<i>path_num</i>).
dsppathalms	Displays the following alarm information for all the specified paths (<i>path_filter</i>).
dsplnalmcnf	Displays the current statistical line alarm thresholds on the specified line.
dsplnalmnt	Displays the alarm counters for the specified line.

Use the commands in [table Table 6-13](#) to display MFR alarms.

Table 6-13 Multilink Frame Relay Alarm Commands—MPSM-T3E3-155 Only

Command	Purpose
dspmfrbundlealm	Displays alarms and statistics for an MFR bundle.
dspmfrbundlealms	Displays alarms and statistic for a all MFR bundles.
dspmfrlnkalm	Displays alarms and statistics for an MFR link.
dspmfrlnkalms	Displays alarms and statistic for a all MFR links.

Managing Ports

This section explains how to manage ports:

- [Displaying a List of Ports](#)
- [Displaying the Status of One Port](#)
- [Modifying an ATM Port](#)
- [Modifying a Frame Relay Port](#)
- [Deleting Ports](#)

For information about adding ports and configuring services, see the following chapters:

- ATM—Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1”
- Frame Relay—Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1”
- PPP—Chapter 5, “Provisioning Multilink PPP Services on MPSM-T3E3-155 and MPSM-16-T1E1”

Displaying a List of Ports

To display a list of all provisioned Frame Relay or ATM ports on the card, enter the **dsports** command in the appropriate CLI context.



Note

The current CLI context of the card is displayed within brackets in the switch prompt. You can change the current CLI context of the card at any time by entering the **setctx [atm | fr]** command. Remember that the cards switch to the *default* service context as soon as you switch to another card via the **cc** command. To change the *default* service context of the card, enter the **cnfclctx [atm | fr]** command.

In the following example, the user displays all ATM ports on the current card:

```
M8850_SF.10.MPSM155 [ATM] .a > dsports
ifNum      Line/  Admin  Oper   Guaranteed Maximum   sctID      ifType  VPI   MINVPI  MAXVPI  IMA
           Path   State  State   Rate      Rate      Cnf/InUse (VNNI, (EVUNI, (EVUNI,  GRP
                                           VUNI)  EVNNI)  EVNNI)
-----
  17      1.1:17  Up     Up     3622     3622     0/ 0 =Def  UNI     0       0       0  N/A
  18      1.2:17  Up     Up     3622     3622     0/ 0 =Def  UNI     0       0       0  N/A
```

In the following example, the user displays all Frame Relay ports on the current card:

```
M8850_SF.27.MPSM16T1E1 [FR] .a > dsports
ESR: Egress queue Service Ratio
          SCT DS0      Port
If  Line/Path  Admn Oper if  In  Start  Speed      Signaling LMI 12
Num Num        Stat Stat Type Use (Num)  kbps    ESR Type   St  Frg
-----
   6      1.6  Up   Up  FR  0  1 (24)  1536    1    None Off Off
  11      1.1  Up   Up  FR  0  1 (24)  1536    1    None Off Off
  13      1.3  Up   Up  FR  0  1 (24)  1536    1    None Off Off
  14      1.4  Up   Up  FR  0  1 (24)  1536    1    None Off Off
  18      1.8  Up   Up  FR  0  1 (24)  1536    1    None Off Off
  19      1.9  Up  LLDn FR  0  1 (24)  1536    1    None Off Off
```

In the following example, the user displays all ports on the current card in MLPPP mode:

```
M8850_SF.25.MPSM16T1E1PPP [FR] .a > dsports
ESR: Egress queue Service Ratio
          SCT DS0      Port
If  Line/Path  Admn Oper if  In  Start  Speed      Signaling LMI 12  MLPPP
Num Num        Stat Stat Type Use (Num)  kbps    ESR Type   St  Frg  Bundle
-----
   5      N/A  Up   Up  FFwd 0  N/A    1536    1    None Off N/A   5
  13      N/A  Up   Up  FFwd 0  N/A    1536    1    None Off N/A  13
```

Displaying the Status of One Port

To display configuration information for one port on a card, enter the **dspport** *<ifnum>* command in the appropriate CLI context. Replace *<ifnum>* with the port or path identifier



Note

The current CLI context of the card is displayed within brackets in the switch prompt. You can change the current CLI context of the card at any time by entering the **setctx** **[atm | fr]** command. Remember that the cards switch to the *default* service context as soon as you switch to another card using the **cc** command. To change the *default* service context of the card, enter the **cnfclctx** **[atm | fr]** command.

In the following example, the user displays the status for ATM port 17.

```
M8850_SF.10.MPSM155[ATM].a > dspport 17
Interface Number           : 17
Line/Path Number          : 1.1:17      IMA Group Number         : N/A
Admin State                : Up           Operational State        : Up
Guaranteed bandwidth(cells/sec): 3622    Number of partitions     : 1
Maximum bandwidth(cells/sec) : 3622    Number of SPVC          : 1
ifType                    : UNI         Number of SPVP          : 0
VPI number (VNNI, VUNI)   : 0       Number of SVC           : 0
                           Number of Sig VC : 0
MIN VPI (EVNNI, EVUNI)   : 0       MAX VPI (EVNNI, EVUNI) : 0
SCT Id                    : 0 =Def
F4 to F5 Conversion       : Disabled
```

In the following example, the user displays the status for Frame Relay port 11.

```
M8850_SF.27.MPSM16T1E1[FR].a > dspport 11
Interface Number           : 11
Line Number               : 1.1
DS0 Speed                 : 64 Kbps
DS0 Configuration Bit Map : 1(24)
Admin State               : Up
Operational State        : Up
Port State                : Active
Port Signaling State     : No Signaling Failure
Interface Type            : Frame Relay
SCT Id                   : 0/0 =Def
Frame Header Length      : Two Bytes
Flags Between Frames     : 1
Equeue Service Ratio     : 1
Port Speed               : 1536 kbps
Checksum type            : crc16
Over-subscription        : Disabled
Signaling Protocol Type  : None
Enhanced LMI             : Disabled
FRF 1.2 Support          : Disabled
Asynchronous Updates     : Disabled
T391 Link Integrity Timer : 10 secs
T392 Polling Verification Timer : 15 secs
```

```
Type <CR> to continue, Q<CR> to stop:
N391 Full Status Polling Counter : 6
N392 Error Threshold            : 3
N393 Monitored Event Count     : 4
FRF.12 Fragmentation           : Disabled
FRF.12 Fragment Size          : 64 Bytes
Port HDLC Frame Inversion      : Disabled
Number of Partitions           : 1
Number of SPVC                 : 1
```

Modifying an ATM Port

To modify the configuration of an ATM port, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [FR] .a > setctx atm
```



Note The current service context appears within brackets in the switch prompt.

- Step 3** Enter the **dsports** command to display all ATM ports on the current MPSM, and to obtain the *ifnum* of the port you want to modify.

```
M8850_SF.10.MPSM155 [ATM] .a > dsports
```

ifNum	Line/ Path	Admin State	Oper State	Guaranteed Rate	Maximum Rate	sctID Cnf/InUse	ifType	VPI (VNUNI, VUNI)	MINVPI (EVUNI, EVNNI)	MAXVPI (EVUNI, EVNNI)	IMA GRP
17	1.1:17	Up	Up	3622	3622	0/ 0 =Def	UNI	0	0	0	N/A
18	1.2:17	Up	Up	3622	3622	0/ 0 =Def	UNI	0	0	0	N/A
19	1.1:18	Up	Up	3622	3622	0/ 0 =Def	EVUNI	0	0	128	N/A
20	1.2:18	Up	Up	3622	3622	0/ 0 =Def	EVUNI	0	0	128	N/A



Note The interface number for each port appears in the *ifNum* column.

- Step 4** To modify SCT ID, enter the **dnport <ifNum>** command to bring down the port that you want to modify. Otherwise, skip this step.

In the following example, the user brings down the ATM port 19:

```
M8850_SF.10.MPSM155 [ATM] .a > dnport 19
Traffic loss will result on all connections on this port.
Do you want to proceed (Yes/No) ? y
```

- Step 5** To modify port parameters, enter the **cnfport** command as follows:

```
M8850_SF.10.MPSM155 [ATM] .a > cnfport <ifNum> [-min <guaranteedRate>] [-max <maxrate>]
[-sct <sctID>] [-minvpi <minVpi>] [-maxvpi <maxvpi>]
```

Table 6-14 describes the parameters for the **cnfport** command in the ATM CLI context.

Table 6-14 Parameters for the cnfport Command—ATM CLI Context

Parameter	Description
<i>ifNum</i>	Specifies the interface number (port number) of the port you are adding. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4–499 MPSM-T3E3-155 range: 4–1003 <p>Note To see the port numbers for all active ATM ports, use the dsports command in the ATM CLI context.</p>

Table 6-14 Parameters for the `cnfport` Command—ATM CLI Context (continued)

-min	<p>Specifies the guaranteed rate on a logical port in cells per second (cps). The minimum rate can be either max cell rate of the interface, or a multiple of 50. Use one of the following methods to calculate the guaranteed rate on an IMA port:</p> <ul style="list-style-type: none"> • T1 based IMA group—Multiple of 50 not greater than $N * (3622 * (M - 1)/M * 2048/2049)$, where N is the number of IMA links in the IMA group, and M is the IMA group frame length. • E1 based IMA group—Multiple of 50 not greater than $N * (M - 1)/M * 2048/2049)$, where N is the number of IMA links in the IMA group, and M is the IMA group frame length. <p>The cumulative guaranteed rate cannot exceed the highest value in the following ranges:</p> <ul style="list-style-type: none"> • OC-192: Between 50 and 22605280 • OC-48: Between 50 and 5651320 • OC-3: 50–353207 cps • T3: 50–96000 (PLCP) or 104268 (ADM) cps • E3: 50–80000 cps • T1: 50–3622 cps • E1: 50–4528 cps <p>Note The guaranteed rate and max rate settings must be the same.</p>
-max	<p>Specifies the maximum rate on a logical port in cells/second. For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), <i>maxrate</i> must be the same as <i>guaranteedRate</i>. See <i>guaranteedRate</i>.</p>
-sct	<p>Specifies the number of a service class template (SCT) for the port. The range is 0–255. Cisco provides SCT numbers 2, 3, 4, and 5. You can modify one of these SCTs through the Cisco WAN Manager application and assign a number in the range 6–255 to the new SCT. Subsequently, you can assign the new SCT to the port using the <i>sctID</i> parameter in <code>cnfport</code>. To see the ID of the current SCT for this port, use <code>dspport</code>. To see the parameters within the current SCT, use the <code>dspportsct</code> command.</p> <p>Note The default setting for <code>-sct</code> is 0.</p>
-minvpi	<p>The minimum VPI for an EVUNI or EVNNI interface:</p> <ul style="list-style-type: none"> • EVUNI range: 0–255 • EVNNI range: 0–4095
-maxvpi	<p>The maximum VPI for an EVUNI or EVNNI interface:</p> <ul style="list-style-type: none"> • EVUNI range: 0–255 • EVNNI range: 0–4095

In the following example, the user changes the minimum and maximum rates on port 19 to 3000 cps:

```
M8850_SF.10.MPSM155[ATM].a > cnfport 19 -min 3000 -max 3000
```

- Step 6** If you brought down a port using the **dnport** command, enter the **upport** *<ifNum>* command as follows to re-activate that port. Replace *<ifNum>* with the interface number of the port you want to activate. Otherwise, skip this step.

```
M8850_SF.10.MPSM155 [ATM] .a > upport 19
```

- Step 7** To verify the configuration of the port, enter the **dspport** *<ifNum>* command. Replace *<ifNum>* with the interface number of the port you modified.

```
M8850_SF.10.MPSM155 [ATM] .a > dspport 19
Interface Number           : 19
Line/Path Number          : 1.1:18      IMA Group Number         : N/A
Admin State                : Up          Operational State        : Up
Guaranteed bandwidth(cells/sec): 3000    Number of partitions     : 1
Maximum bandwidth(cells/sec): 3000     Number of SPVC           : 1
ifType                     : EVUNI      Number of SPVP           : 0
VPI number (VNNI, VUNI)    : 0          Number of SVC            : 0
                               Number of Sig VC         : 0
MIN VPI (EVNNI, EVUNI)    : 0          MAX VPI (EVNNI, EVUNI)  : 128
SCT Id                     : 0 =Def
F4 to F5 Conversion        : Disabled
```

Modifying a Frame Relay Port

This section explains how to modify Frame Relay ports on the MPSM-T3E3-155 and MPSM-16-T1E1 cards, and multilink Frame Relay ports on the MPSM-T3E3-155. You do not need to configure ports on the MPSM-16-T1E1 in the PPP mode; you work with MLPPP bundles instead.

For information about managing multilink Frame Relay ports and multilink PPP bundles, see the following sections:

- [“Managing Multilink PPP Services” section on page 6-50](#)
- [“Managing Multilink Frame Relay Services” section on page 6-44](#)

To modify a Frame Relay port, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the ATM CLI context, as shown in the following example

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To display all Frame Relay ports on the current MPSM, and to obtain the *ifnum* of the port you want to modify, enter the **dsports** command as follows.

```
M8850_SF.27.MPSM16T1E1[FR].a > dsports
ESR: Egress queue Service Ratio
```

If Num	Line/Path Num	Admn Stat	Oper Stat	if Type	SCT In Use	DS0 Start (Num)	Port Speed kbps	ESR	Signaling Type	E LMI St	FRF 12 Frq
6	1.6	Up	Up	FR	0	1(24)	1536	1	None	Off	Off
11	1.1	Up	Up	FR	0	1(24)	1536	1	None	Off	Off
13	1.3	Up	Up	FR	0	1(24)	1536	1	None	Off	Off
14	1.4	Up	Up	FR	0	1(24)	1536	1	None	Off	Off
18	1.8	Up	Up	FR	0	1(24)	1536	1	None	Off	Off

- Step 4** To modify the SCT used by the port, enter the **dnport** *<ifNum>* command to bring down the port you want to modify. Otherwise, skip this step.

In the following example, the user brings down the Frame Relay port 11:

```
M8850_SF.27.MPSM16T1E1[FR].a > dnport 113
Traffic loss will result on all frame relay connections on this card.
Do you want to proceed (Yes/No) ? y
```

- Step 5** If you want to modify any of the connection-affecting parameters, you must delete any connections configured on the port. The connection-affecting parameters include:

- DLCI length
- Number of flags between frames
- Service ratio
- Checksum type indicator
- Oversubscription

To bring down any connections on the port you want to modify, enter the **delcon** *<ifNum>* *<dlci>* command. Replace *<ifNum>* with the interface number of the port you want to modify, and replace *<dlci>* with the DLCI of the connection you want to de-activate. Before deleting a connection, record connection parameters so you can easily add it later. Use the **dspon** *<ifNum>* *<dlci>* command to display a connection.



Note Enter the **dspons** command in the Frame Relay CLI context to see all connections associated with Frame Relay ports on the current card. The port ID and the DLCI number appear under the Identifier column in the **dspons** command display. You need the port ID and the DLCI number to bring down

```
M8850_SF.27.MPSM16T1E1[FR].a > delcon 113 130
Admin state of connection is DOWN
```

- Step 6** To modify port parameters, enter the **cnfport** command as follows:

```
M8850_SF.27.MPSM16T1E1[FR].a > cnfport <ifNum>
[-sct <sctID>] [-dlciLen <dlciLen>]
[-flags <portFlagsBetweenFrames>] [-rat <PortQueueServiceRatio>]
[-csum <checksum>] [-oversub <overSubscribeEnable>]
[-lmiSig <lmiSigType>] [-asynUpdt <updateType>]
[-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>]
[-n391 <n391Value>] [-n392 <n392Value>] [-n393 <n393Value>]
[-fragEnable <fragEnable>] [-fragSize <fragSize>] [-hdlcinV <hdlcinV>]
```

Table 6-15 describes the parameters for the **cnfport** command in the Frame Relay CLI context.

Table 6-15 Parameters for the *cnfport* Command—Frame Relay CLI Context

Parameter	Description
<i>ifNum</i>	<p>Specifies the interface number (port number) of the port you are adding.</p> <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4–499 MPSM-T3E3-155 range: 4–1003 <p>Note Use the dsports command in the Frame Relay CLI context to see the port numbers for all active Frame Relay ports.</p>
-sct	<p>Specifies the number of a service class template (SCT) for the port, in the range 1–255.</p> <p>Note Before you can change the port SCT, you must bring down the port using the dnport command.</p>
-dlciLen	<p>Specifies the DLCI header length:</p> <ul style="list-style-type: none"> 1 = 2-byte DLCI header 2 = 4-byte DLC header <p>Note You cannot modify the DLCI header length while active connections exist on the port. Before you modify the -dlciLen parameter, enter the delcon command to delete any connections on the specified port.</p>
-flags	<p>Specifies the flags between frames:</p> <ul style="list-style-type: none"> 1 = 1 flag 2 = 2 flags 3 = 4 flags 4 = 8 flags 5 = 16 flags 6 = 32 flags 7 = 64 flags 8 = 128 flags <p>Note You cannot modify the DLCI header length while active connections exist on the port. Before you modify the -flags parameter, enter the delcon command to delete any connections on the specified port.</p>

Table 6-15 Parameters for the `cnfport` Command—Frame Relay CLI Context (continued)

-rat	<p>This keyword and argument defines the egress service ratio between high priority and low priority queues.</p> <p>Enter the keyword followed by a number that indicates the egress service ratio, in the range from 1 to 15.</p> <ul style="list-style-type: none"> • Enter 1 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis. • The default setting is 1 which allocates the traffic of the CBR and rt-VBR service categories to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue. <p>Note You cannot modify the DLCI header length while active connections exist on the port. Before you modify the <code>-rat</code> parameter, enter the delcon command to delete any connections on the specified port.</p>
-csum	<p>Checksum type indicator:</p> <ul style="list-style-type: none"> • 1 = crc16 • 2 = crc32 <p>Note You cannot modify the DLCI header length while active connections exist on the port. Before you modify the <code>-csum</code> parameter, enter the delcon command to delete any connections on the specified port.</p>
-oversub	<p>Oversubscription indicator:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable <p>Note You cannot modify the DLCI header length while active connections exist on the port. Before you modify the <code>-oversub</code> parameter, enter the delcon command to delete any connections on the specified port.</p>
-lmiSig	<p>LMI signaling type indicator:</p> <ul style="list-style-type: none"> • 2 = No Signaling • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI <p>Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.</p>

Table 6-15 Parameters for the *cnfport* Command—Frame Relay CLI Context (continued)

-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-t391	<p>T391 timer—Link Integrity Verification polling timer. The user (DTE) sends status inquiry messages to the network (DCE) every T391 seconds. An error is recorded if a status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 5–30.</p>
-t392	<p>T392 timer—Polling Verification timer. The network (DCE) expects status inquiry messages from the user (DTE) every T392 seconds. If the network does not receive a status inquiry message from the user within T392 seconds and the timer expires, the network records a missing status inquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bidirectional polling is present. Range 5–30.</p>
-n391	<p>N391 counter. This setting establishes the Full Status (status of all PVCs) polling cycle. The user (DTE) sends a Full Report Status Enquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bidirectional polling is present. Range 1–255.</p>

Table 6-15 Parameters for the `cnfport` Command—Frame Relay CLI Context (continued)

-n392	N392 counter—Specifies the UNI/NNI error threshold. This is the number of errors during N393 events that trigger an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1–10.
-n393	N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could enter and exit error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the -n392 parameter. Range: 1–10.
-fragEnable	Controls fragmentation on the port. <ul style="list-style-type: none"> • 1=enable • 2= disable
-fragSize	Specifies the size of the fragments in bytes: <ul style="list-style-type: none"> • 40 • 64 • 128 • 256 • 512
-hdlcinv	Controls HDLCI NV on the port. <ul style="list-style-type: none"> • 1=enable • 2= disable

In the following example, the user enables oversubscription on port 11, DLCI 150:

```
M8850_SF.27.MPSM16T1E1[FR].a > cnfport 113 -oversub 1
```

- Step 7** If you brought down a port in Step 4 using the **dnport** command, enter the **upport** *<ifNum>* command as follows to re-activate that port. Replace *<ifNum>* with the interface number of the port you want to activate. Otherwise, skip this step.

```
M8850_SF.27.MPSM16T1E1[FR].a > upport 113
```

- Step 8** If you brought down a connection in Step 5 using the **addcon** command, specify the parameters of the connection you previously deleted. Otherwise, skip this step.

In the following example, the user activates the connection on port 30, DLCI 100:

```
M8850_SF.27.MPSM16T1E1[FR].a > addcon 113 130 1 1 1 1536000 -slave
47009181000000000164444B610000011B1FFF00.28.150
master endpoint added successfully
master endpoint id : 47009181000000000164444B610000011B1FFF00.224.130
```

- Step 9** To verify the configuration of the modified port, enter the **dspport** *<ifNum>* command. Replace *<ifNum>* with the interface number of the port you modified.

```

M8850_SF.27.MPSM16T1E1[FR].a > dspport 113
  Interface Number      : 113
  Line Number           : 1.13
  DS0 Speed             : 64 Kbps
  DS0 Configuration Bit Map : 1(24)
  Admin State           : Up
  Operational State     : Up
  Port State            : Active
  Port Signaling State  : No Signaling Failure
  Interface Type        : Frame Relay
  SCT Id                : 0/0 =Def
  Frame Header Length   : Two Bytes
  Flags Between Frames  : 1
  Equeue Service Ratio  : 1
  Port Speed            : 1536 kbps
  Checksum type         : crc16
  Over-subscription     : Enabled
  Signaling Protocol Type : None
  Enhanced LMI          : Disabled
  FRF 1.2 Support       : Disabled
  Asynchronous Updates  : Disabled
  T391 Link Integrity Timer : 10 secs
  T392 Polling Verification Timer : 15 secs

```

Type <CR> to continue, Q<CR> to stop:

```

N391 Full Status Polling Counter : 6
N392 Error Threshold             : 3
N393 Monitored Event Count       : 4
FRF.12 Fragmentation            : Disabled
FRF.12 Fragment Size            : 64 Bytes
Port HDLC Frame Inversion        : Disabled
Number of Partitions             : 1
Number of SPVC                   : 1

```

Deleting Ports

Use the **delport** command to delete ATM and Frame Relay ports from an MPSM-T3E3-155 or MPSM-16-T1E1 card, or a multilink Frame Relay port from an MPSM-T3E3-155 card.

Before you can delete a port, the following conditions apply:

- You must be in the CLI context that corresponds to the port type to delete, either ATM or Frame Relay.
- You must delete active connections associated with the port you want to delete.
- You must disable signaling on the port. Enter the **dsppnportsig** command on the PXM to see if signaling is disabled or enabled on the port.

Deleting an ATM Port

To delete an ATM port on a card, perform the following steps:

-
- Step 1** Establish a configuration session using a username with Group1 privileges or higher.

- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To display all ATM ports on the current card, and to obtain the *ifnum* of the port you want to delete, enter the **dsports** command as follows.

```
M8850_SF.27.MPSM16T1E1[ATM].a > dsports
ifNum   Line/   Admin  Oper   Guaranteed Maximum   sctID   ifType  VPI   MINVPI  MAXVPI  IMA
        Path   State  State   Rate         Rate   Cnf/InUse  (VNNI, (EVUNI, (EVUNI, GRP
                                                VUNI)  EVNUNI) EVNUNI)
-----
  12     1.2    Up     Up     3622        3622   0/ 0 =Def  NNI     0       0       0  N/A
```

The interface number for each port appears in the *ifNum* column.

- Step 4** If connections are associated with the port you want to delete, enter the **delcon** *<ifNum>* *<vpi>* *<vci>* command to delete them. Replace the *<ifNum>* *<vpi>* *<vci>* parameters with the interface number, VPI, and VCI of the port you want to delete.



Note To display the *vpi* and *vci* for a specific port (*ifNum*), enter the **dsicons** command. This information is in the *Identifier* column in the display.

In the following example, the user displays all connections on the current MPSM, and deletes the connection on port 12 with a VPI of 35 and a VCI of 120.

```
M8850_SF.27.MPSM16T1E1[ATM].a > dsicons
record  Identifier  Type  Srvctype  M/S  Upld  Admn  Alarm
-----
      1  12 0035 00120  VCC      cbr1  S    0000001b  UP    none

M8850_SF.27.MPSM16T1E1[ATM].a > delcon 12 35 120
Deletion successful
```

- Step 5** To delete a specific port, enter the **delport** *<ifNum>* command. Replace *<ifNum>* with the interface number for the port you want to delete.



Note To view the interface numbers for all ATM ports on the current card, enter the **dsports** command.

In the following example, the user deletes port 12 from the current card:

```
M8850_SF.27.MPSM16T1E1[ATM].a > delport 12
```

- Step 6** Verify that the appropriate port is deleted by entering the **dsports** command.

Deleting a Frame Relay Port

To delete a Frame Relay port on a card, use the following procedure.

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the ATM CLI context, as shown in the following example:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** Enter the **dsports** command as follows to display all Frame Relay ports on the current card, and to obtain the *ifnum* of the port you want to delete.

```
M8850_SF.27.MPSM16T1E1 [FR] .a > dsports
ESR: Egress queue Service Ratio
```

If Num	Line/Path Num	Admn Stat	Oper Stat	if Type	SCT Use	DS0 In	Port Start (Num)	Speed kbps	ESR	Signaling Type	E LMI St	FRF 12 Frg
11	1.1	Up	Up	FR	0	1 (24)	1536	1	1	None	Off	Off
13	1.3	Up	Up	FR	0	1 (24)	1536	1	1	None	Off	Off
14	1.4	Up	Up	FR	0	1 (24)	1536	1	1	None	Off	Off
18	1.8	Up	Up	FR	0	1 (24)	1536	1	1	None	Off	Off

The interface number for each port appears in the ifNum column.

- Step 4** If connections are associated with the port you want to delete, enter the **delcon <ifNum> <dlci>** command to delete them. Replace the *<ifNum>* *<dlci>* parameters with the port number and the DLCI of the port you want to delete.



Note To obtain the DLCI for a specific port (*ifNum*), consult the Identifier column in the **dsicons** command display.

In the following example, the user displays all connections on the current card, and deletes the connection on port 10 that has a DLCI of 200.

```
MM8850_SF.27.MPSM16T1E1 [FR] .a > dsicons
```

record	Identifier	SrvcType	M/S	Upld	Admn	Alarm
0	11 0000150	High Priority	M	00000021	UP	None

```
M8850_SF.27.MPSM16T1E1 [FR] .a > delcon 11 150
Deletion successful
```

- Step 5** To delete a specific port, enter the **delport <ifNum>** command. Replace *<ifNum>* with the interface number for the port you want to delete.



Note To view the interface numbers for all Frame Relay ports on the current MPSM, enter the **dsports** command.

In the following example, the user deletes port 11 from the current card:

```
M8850_SF.27.MPSM16T1E1[FR].a > delport 11
```

Step 6 Verify that the appropriate port is deleted by entering the **dsports** command.

Managing Multilink Frame Relay Services

This section explains how to manage multilink Frame Relay (MFR) services on the MPSM-T3E3-155 card, in the following sections:

- [Managing MFR Bundles](#)
- [Managing MFR Links](#)
- [Managing Ports](#)
- [Deleting Bundles, Links, and Ports](#)

Managing MFR Bundles

This section explains how to display and configure MFR bundles.

Displaying Bundles

To display summary and detail MFR bundle information, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Change to the MPSM-16-T1E1 card using the **cc** command.
- Step 3** To list all MFR bundles configured on the current card, enter the **dspmfrbundles** command.

```
M8850_SF.10.MPSM155[FR].a > dspmfrbundles
```

Mfr Bundle	Activation Class	Minimum Links	Configured Links	Active Links	Admin State	Oper State	Max Diff Delay
1	A	1	4	4	Up	Up	300
2	A	1	4	4	Up	Up	300
4	C	2	2	0	Up	Down	300
5	C	2	2	0	Up	Down	300

Table 6-16 describes the bundle display.

Table 6-16 *dspmfrbundles Display*

Column	Description
MFRBundle	The bundle number.
Activation Class	<ul style="list-style-type: none"> Class A—At least one bundle link must be operational for the MFR bundle to be operational Class B—All of the bundle links must be operational for the MFR bundle to be operational Class C—Configured number of bundle links must be operational for the MFR bundle to be operational
Minimum Links	Minimum number of links for the bundle to be operational.
Configured Links	Number of links configured on the bundles.
Active Links	Number of active links.
Admin State	Admin state, as controlled by upmfrbundle and dnmfrbundle .
Oper State	<p>Up—The MFR bundle is negotiated and accepted, and the minimum number of links are operational.</p> <p>Down—The following are possible causes for a bundle to be down:</p> <ul style="list-style-type: none"> Bundle is in admin down state Insufficient or no links in this bundle are operational Insufficient or no links are added to this bundle
Max Diff Delay	The maximum differential delay in the bundle.

Step 4 To display detailed configuration and operational information for a specific MFR bundle, enter the **dspmfrbundle** *<bundleNum>* command, specifying the number of the bundle you want to display.

```
M8850_SF.10.MPSM155[FR].a > dspmfrbundle 1
Bundle Number           : 1
Activation Class        : A
Minimum Links           : 1
Admin state              : Up
Oper State               : Up
Hello Timer (seconds)   : 10
Ack Timer (seconds)     : 4
Max Retry Count         : 2
Maximum Bundle Links    : 12
Configured Number of Links : 4
Active Number of Links  : 4
Available Bandwidth     : 6176000
Near End Bundle Name    : M8850_SF.Slot10.Bundle01
Far End Bundle Name     : M8850_SF.Slot10.Bundle02
```

Configuring an MFR Bundle

To configure an MFR bundle, perform the following steps:

- Step 1 Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2 Enter the **dspmfrbundles** command to list the MFR bundles configured on the current card.
- Step 3 If the MFR bundle is administratively up, bring it down by entering the **dnmfrbundle** *<bundleNum>* command.
- Step 4 Configure MFR bundle parameters using the **cnfmfrbundle** command.

```
M8850_SF.9.MPSM155 [FR] .a > cnfmfrbundle -bundle <bundleNum>
[-class <activationclass>] [-minlinks <minimumlinks>]
[-hellotimer <hellotimer>] [-acktimer <acktime>]
[-maxretry <maxretry>] [-bname <bundleName>]
```

Table 6-17 describes **cnfmfrbundle** command parameters.

Table 6-17 *cnfmfrbundle* Command Parameters

Parameter	Description
-bundle	MFR bundle number, range 1–42
-class	Bundle activation class: <ul style="list-style-type: none"> • 1 = Class A—At least one bundle link must be operational for the MFR bundle to be operational • 2 = Class B—All of the bundle links must be operational for the MFR bundle to be operational • 3 = Class C—Configured number of bundle links must be operational for the MFR bundle to be operational
-minlinks	Minimum number of links for class-C activation class. Range 1–12
-hellotimer	Interval for sending hello messages. Range 1–180 seconds
-acktimer	Maximum time period to wait for an acknowledgement from the far en. Range 1–10 seconds
-maxretry	Maximum number of retries (maximum retries). Range 1–5 retries
-bname	Near-end bundle name: A null-terminated string consisting of ASCII characters A–Z, a–z, 0–9, and any printable characters, with a maximum of 49 characters.

In the following example, the user increases the minimum number of links for a Class C MFR bundle to 4 and sets the maximum number of retries to 4.

```
M8850_SF.9.MPSM155 [FR] .a > dnmfrbundle 4
M8850_SF.9.MPSM155 [FR] .a > cnfmfrbundle -bundle 4 -minlinks 4 -maxretry 4
```

- Step 5 Restore the bundle to the administrative up state by entering the **upmfrbundle** *<bundleNum>* command.
- Step 6 To verify MFR bundle configuration, enter the **dspmfrbundle** *<bundleNum>* command, specifying the number of the bundle you want to display.


```

M8850_SF.10.MPSM155[FR].a > dspmfrrbundle 4
  Bundle Number           : 4
  Activation Class        : C
  Minimum Links           : 4
  Admin state              : Up
  Oper State               : Down
  Hello Timer (seconds)   : 10
  Ack Timer (seconds)     : 4
  Max Retry Count         : 4
  Maximum Bundle Links    : 12
  Configured Number of Links : 0
  Active Number of Links  : 0
  Available Bandwidth     : 0
  Near End Bundle Name    : M8850_SF.Slot10.Bundle04
  Far End Bundle Name     : <not defined>

```

Managing MFR Links

This section explains how to display, configure, add and delete MFR links.

Displaying Links

To display summary and detail MFR link information, perform the following procedure:

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** List all MFR links configured on the current card by entering the **dspmfrlnks** command.

```

M8850_SF.10.MPSM155[FR].a > dspmfrlnks
  Link   Bundle   Link   Link Alarm   Link   PHY Oper
  Num    Num      State  State      Delay(ms)  State
-----
  1.1:3   1           Up      Clear      21         Up
  1.1:4   1           Up      Clear      20         Up
  1.1:5   1           Up      Clear      20         Up
  1.1:6   1           Up      Clear      20         Up
  1.2:3   2           Up      Clear      20         Up
  1.2:4   2           Up      Clear      20         Up
  1.2:5   2           Up      Clear      20         Up
  1.2:6   2           Up      Clear      20         Up

```

Table 6-18 describes the display.

Table 6-18 *dspmfrlnks Display*

Column	Description
Link Num	Link (path id) for the link.
Bundle Num	Number of the bundle of which the link is a member.
Link State	Current state of link activation.
Link Alarm State	Link alarm, if any.

Table 6-18 *dspmfrlnks Display (continued)*

Column	Description
Link Delay	Link delay, in ms.
PHY Oper State	Up—MFR link is negotiated and accepted. Down—MFR link is not negotiated nor accepted.

Step 3 To display detail configuration and operational information for a specific MFR link, enter the **dspmfrlnk** <link> command, specifying the number of the link you want to display.

```
M8850_SF.10.MPSM155[FR].a > dspmfrlnk 1.1:3
  Link Number           : 1.1:3
  Bundle Number        : 1
  Link State            : Up
  Link Alarm State      : Clear
  Link Delay (Rtt in msec) : 21
  Link Near End Name    : M8850_SF.Slot10.Link03
  Link Far End Name     : M8850_SF.Slot10.Link31
  Link Far End Bundle Name : M8850_SF.Slot10.Bundle02
  Link PHY Operational Status : Up
```

Configuring MFR Links

Links have a default near-end name in the format *node.slot.link*, for example M8850_SF.Slot10.Link11. To rename a link, perform the following steps.

- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
- Step 2** Reconfigure the link by entering the **cnfmfrlnk** command.

```
M8850_SF.10.MPSM155[FR].a > cnfmfrlnk -link <lnkNum> -lname <linkname>
```

[Table 6-19](#) describes **cnfmfrlnk** command parameters.

Table 6-19 *cnfmfrlnk Command Parameters*

Parameter	Description
-link	Link identifier: <ul style="list-style-type: none"> • DS3 payload: <i>bay.line.sts:ds1</i> • VT payload: <i>bay.line.sts:vtg.vt</i> • VT structured: <i>bay.line.sts:tug3.vtg.vt</i> where: <i>bay</i> = 1, <i>line</i> = 1–3, <i>sts</i> = 0–3, <i>ds1</i> = 1–28, <i>tug3</i> = 1–3, <i>vtg</i> = 1–7, <i>vt</i> = 1–4 (VT15) or 1–3 (VT2)
-lname	Near-end link name: A null-terminated string consisting of ASCII characters A–Z, a–z, 0–9, and any printable characters with a maximum of 49 characters.

In the following example, the user changes the MFR link name to M8850_SF.Slot09.Bundle04.Link11.

```
M8850_SF.9.MPSM155[FR].a > cnfmfrlnk -link 1.1.1:1 -lname M8850_SF.Slot09.Bundle04.Link11
```

Step 3 To verify MFR link configuration, enter the **dspmfrlnk <lnkNum>** command.

```
M8850_SF.10.MPSM155[FR].a > dspmfrlnk 1.1:11
Link Number           : 1.1:11
Bundle Number         : 4
Link State             : Down
Link Alarm State      : Other
Link Delay (Rtt in msec) : 0
Link Near End Name    : M8850_SF.Slot09.Bundle04.Link11
Link Far End Name     : <not defined>
Link Far End Bundle Name : <not defined>
Link PHY Operational Status : Down
```

Adding or Removing Links

You can add or remove links from an operational bundle to change the bundle bandwidth. To add a link to a MFR bundle, enter the **addmfrlnk <link> <bundleNum>** command. The link becomes operational after successful negotiation with the remote end. For more information about adding links, see the [“Adding Links to an MFR Bundle” section on page 4-39](#).

To delete a link, enter the **delmfrlnk <link>** command. Deleting a link sends a remove-link request message to the far-end of the link. The bundle stops transmitting data on the link after the remove-link request has been sent. However, data received on the link is processed until the acknowledgement for the remove-link request is received.



Note

A Class C bundle becomes inoperative if the number of links drops below the minimum number.

Managing Ports

To manage MFR ports, use the same commands used for Frame Relay ports. To manage MFR ports, refer to the following Frame Relay Sections sections:

- [Displaying the Status of One Port, page 6-32](#)
- [Modifying a Frame Relay Port, page 6-35](#)
- [Deleting Ports, page 6-41](#)

Deleting Bundles, Links, and Ports

MFR bundles, links, ports and connections are interdependent, so you must delete these components in the reverse order that you created them.

To delete an MFR bundle, link, or port, perform the following steps.

-
- Step 1** Establish a configuration session with the MPSM-T3E3-155 using a username with Group1 privileges or higher.
 - Step 2** Delete the MFR port by entering the **delport** *<ifNum>* command. You must delete the connection to the port before deleting the port.
 - Step 3** Delete all MFR links by entering the **delmfrlink** *<link>* command. You must delete the port before deleting the last link.
 - Step 4** Delete the MFR bundle by entering the **delmfrbundle** *<bundleNum>* command. You must delete all links from the bundle before deleting the bundle.
 - Step 5** To verify the deletion of ports, links, or bundles, enter the **dspports**, **dspmfrlinks**, or **dspmfrbundles** commands respectively.
-

Managing Multilink PPP Services

This section explains how to manage multilink PPP (MLPPP) services on the MPSM-16-T1E1 and MPSM-T3E3-155 cards, in the following sections:

- [Managing Bundles](#)
- [Managing PPP Links](#)
- [Managing PPPMUX](#)
- [Deleting MLPPP Bundles, Links, and PPPMUX](#)
- [Displaying Statistics](#)

Managing Bundles

This section explains how to display and configure MLPPP bundles.

Displaying MLPPP Bundles

To display summary and detail MLPPP bundle information, perform the following procedure:

-
- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command.
 - Step 3** To list all MLPPP bundles configured on the current card, enter the **dspmpbundles** command.

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundles
MLPPP Admin Oper Active Available Alarm MUX AutoBW WP
Bundle State State Links Bandwidth Cause Status Mode Id
-----
 1      Up   Up    2      512000   No Alarm  Disable  Enable  1
 2      Up   Up    2     3968000   No Alarm  Disable  Enable  2
 3      Up   Up    3     5952000   No Alarm  Disable  Enable  1
```



Note WP Id is displayed for the MPSM-T3E3-155 only.

Table 6-20 describes the information displayed.

Table 6-20 *dspmpbundles Display*

Column	Description
MLPPP Bundle	Bundle number.
Admin State	Administrative state, as controlled by upmpbundle and dnmpbundle .
Oper State	Operational state: <ul style="list-style-type: none"> • Up—The MLPPP is negotiated and accepted. At least one link is operational in this MLPPP bundle. • Down—The following are possible causes for an MLPPP bundle to be down: <ul style="list-style-type: none"> – Bundle is in admin down state – No link in this bundle is operational – No links are added to this bundle – PPP LCP negotiation with remote end failed on all links in this bundle – MLPPP LCP negotiation with remote end failed on all links in this bundle
Active Links	Number of operational links in the bundle.
Available Bandwidth	Aggregate bandwidth of the bundle.
Alarm Cause	Cause of the alarm for the bundle, if any.
MUX Status	State of PPPMUX for the bundle, either Enable or Disable.
Auto BW Mode	State of the dynamic bandwidth feature for bundle, either Enable or Disable.
WP Id	Winpath packet processing engine assigned to the bundle. (MPSM-T3E3-155 only)

Step 4 To display detailed configuration and operational information for a specific MLPPP bundle, enter the **dspmpbundle <bundleNumber>** command, specifying the number of the bundle you want to display.

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundle 3
  Bundle Number      : 3
  Admin State        : Up
  Oper State         : Up
  Alarm Cause        : No Alarm
  MRRU               : 1524
  SeqNumFormat       : 24 bit
  Fragmentation      : Disable
  EndpointDiscrimClass : 2
  EndpointDiscriminator : M8850_SF.9.3
  LinksConfigured    : 3
  LinksActive        : 3
  RemoteMRRU         : 1524
  RemoteEndpDiscrimClass : 2
  RemoteEndpDiscriminator : M8830_SF.6.3
  Configured Bandwidth : 5952000
  Available Bandwidth : 5952000
```

- Step 5** To display MLPPP bundle QoS configuration information, enter the **dspmpbundleparams** *<bundleNumber>* command, specifying the number of the bundle you want to display.

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundleparams 1
```

```
MP Bundle (1) HW Parameters
-----
Queue[0] Threshold      : 100
Queue[1] Threshold      : 100
Queue[2] Threshold      : 100
Normalized PVC Bandwidth : 8600
AutoBandwidth Mode      : Enable
```

Configuring MLPPP Bundles

To change the configuration of an existing MLPPP bundle, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command.
- Step 3** Configure an MLPPP bundle using the **cnfmpbundle** command.

```
M8850_SF.9.MPSM155PPP[FR].a > cnfmpbundle -bundle <bundleNumber> [-mrru <value>]
[-endDisc <value>]
```

[Table 6-21](#) describes the parameters for the **cnfmpbundle** command.

Table 6-21 *cnfmpbundle Command Parameters*

Parameter	Description
-bundle	Specifies the MLPPP bundle number. Note Enter the dspmpbundles command to display all MLPPP bundles on the card.
-mrru	Specifies the Max Received Reconstructed Unit (MRRU), in the range 64 - 1524. After the user adds a link to an MLPPP bundle, the MRRU is sent to the remote end, which notifies the remote end that this link is capable of receiving MLPPP packets.
-endDisc	Describes the bundle endpoint. The value is null terminated string that contains printable ASCII characters, which include A-Z, a-z, and 0-9. Maximum length: 20 characters.

The following example changes the MRRU of bundle 2 to 64.

```
M8850_SF.9.MPSM155PPP[FR].a > cnfmpbundle -bundle 2 -mrru 64
Warning: Bundle Config is being changed, traffic might be interrupted briefly
```

- Step 4** Verify the MLPPP bundle configuration using the **dspmpbundle** commands. See the [“Displaying MLPPP Bundles” section on page 6-50](#).

Configuring Bundle QoS

You can customize Layer 2 QoS queues and configure PVC bandwidth control using the **cnfmpbundle** command. The MPSM enforces Layer 2 QoS in the RPM-XF to MPSM direction using the following queues:

- Q0—Queues high-priority traffic, such as voice.
- Q1—Queues important traffic, such as control packets
- Q2—Queues all other traffic

The RPM-XF defines the target queue when it passes data to the MPSM. Because these are strict priority queues, high-priority traffic can delay low-priority traffic if the RPM-XF sends data to the bundle faster than the bundle can send it out. To avoid this problem, the dynamic bandwidth feature (auto-bw) automatically limits the PVC bandwidth between the RPM-XF and MPSM to a value less than the bundle bandwidth.

When recomputing the PVC bandwidth, the MPSM considers:

- Operational bundle bandwidth
- Normalized PVC bandwidth (normpvcbw) parameter

The normalized PVC bandwidth represents the cells/sec that a single T1/E1 span generates. Set this value according to the traffic model, the voice and data payload size, the bundle utilization, and the multiplex factor in your network.

If you disable the dynamic bandwidth feature, you must manually provision the PVC bandwidth between the RPM-XF and MPSM to a value somewhat less than the MLPPP bundle bandwidth. Any subsequent change you make to bundle bandwidth, such as adding a PPP link, requires reprovisioning of the PVC bandwidth.

To configure MLPPP bundle parameters, perform the following steps:

-
- Step 1** Establish a configuration session using a username with GROUP1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command.
 - Step 3** Enter the **cnfmpbundleparams** command to configure the bundle, specifying the bundle number and desired parameters.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > cnfmpbundleparams -bundle <bundleNumber>
[-q0threshold <value>] [-q1threshold <value>] [-q2threshold <value>]
[-normpvcbw <value>] [-autobw <value>]
```

Table 6-22 describes the parameters for the **cnfmpbundleparams** command.

Table 6-22 *cnfmpbundleparams Command Parameters*

-bundle	Specifies the MLPPP bundle number. Enter the dspmpbundles command to display all MLPPP bundles on the card.
-q0threshold	Q0 threshold, range 0 - 65535 packets Default: 100
-q1threshold	Q1 threshold, range 0 - 65535 packets Default: 100

Table 6-22 *cnfmpbundleparams* Command Parameters

-q2threshold	Q2 threshold, range 0 - 65535 packets Default: 100
-normpvcbw	Normalized PVC bandwidth, range 0 - 176603 cps Default: 8600 cps
-autobw	Auto PVC bandwidth mode. When enabled, the bundle automatically negotiates the bandwidth on connections to the RPM-XF. <ul style="list-style-type: none"> • 1 = enable • 2 = disable

The following example shows how to disable the automatic bandwidth feature on bundle 2.

```
M8850_SF.27.MPSM16T1E1PPP [FR] .a > cnfmpbundleparams -bundle 2 -autobw 2
```

- Step 4 Verify the MLPPP bundle configuration using the **dspmpbundleparams** commands. See the “[Displaying MLPPP Bundles](#)” section on page 6-50.

Managing PPP Links

This section explains how to display, configure, add, and delete MLPPP links.

Displaying PPP Links

To display MLPPP link information, perform the following steps:

- Step 1 Establish a configuration session using a username with Group1 privileges or higher.
- Step 2 Start a management session with the MPSM card using the **cc** command.
- Step 3 To list all MLPPP links configured on the current card, enter the **dspppplinks** command.

```
M8850_SF.27.MPSM16T1E1PPP [FR] .a > dspppplinks
```

Link Number	Admin State	Oper State	Start DS0	Number of DS0	Bundle Number	Bay.Line Number	PPP Link Description
1	Up	Up	2	31	1	1.1	LineSide
2	Up	Up	2	31	1	1.2	LineSide
3	Up	Up	2	31	1	1.3	LineSide
4	Up	Up	2	31	1	1.4	LineSide
5	Up	Up	2	31	5	1.5	LineSide
6	Up	Up	2	31	5	1.6	LineSide
7	Up	Up	2	31	5	1.7	LineSide
8	Up	Up	2	31	5	1.8	LineSide
13	Up	Up	2	31	13	1.13	LineSide
14	Up	Up	2	31	13	1.14	LineSide
15	Up	Up	2	31	13	1.15	LineSide
16	Up	Up	2	31	13	1.16	LineSide
512	Up	Up	1	0	1	N/A	SwitchSide
516	Up	Up	1	0	5	N/A	SwitchSide
524	Up	Up	1	0	13	N/A	SwitchSide

Table 6-23 describes the link display.

Table 6-23 *dsppplinks Display*

Column	Description
Link Number	PPP link number.
Admin State	Administrative state of the link, as controlled by upppplink and dnppplink .
Oper State	The operational state of the link. <ul style="list-style-type: none"> up—The PPP is negotiated and accepted, and there are no other alarms on this PPP link. down—Possible causes for PPP to be in a down state: <ul style="list-style-type: none"> Physical layer is in alarm PPP LCP negotiation with remote end failed on this link
Start DS0	The first DS0 in the link.
Number DS0	Number of DS0s in the link.
Bundle Number	Bundle to which the link is a member.
Bay.Line Number or Path ID	The link identifier: <ul style="list-style-type: none"> MPSM-16-T1E1—The line number, in the format bay.line. MPSM-T3E3-155—The path identifier for a channelized line.
PPP Link Description	The type of link: <ul style="list-style-type: none"> LineSide—Identifies line-side links that were manually added to the bundle. SwitchSide—Identifies switch-side links, which the MPSM automatically creates for the bundle.

Step 4 To display detailed configuration and operational information for a specific MLPPP link, enter the **dsppplink <linkNumber>** command, specifying the number of the link you want to display.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dsppplink 1
  PPP Link ID           : 1
  AdminStatus           : Up
  OperState             : Up
  Fail Reason           : NoAlarm
  BundleID              : 1
  PhysicalLineID        : 1.1
  DS1LinkStartDS0       : 2
  DS1LinkNumDS0         : 12
  DS1Link56KbpsMode     : Disable
  MRU                   : 1234
  LcpTimeout            : 10000
  LcpLoopCheck          : Disable
  RemoteMRU             : 1234
  PFCReceive            : Enable
  ACFCReceive           : Enable
  PFCTransmit           : Enable
  ACFCTransmit          : Enable
  PFCTransmitOper       : Enable
  ACFCTransmitOper      : Enable
  LinkDescriptor        : LineSide
  RestartTimer          : 3000
  MaxConfigReqRetry     : 10
```

Configuring PPP Links

To configure an individual PPP link, perform the following steps

- Step 1 Establish a configuration session using a username with Group1 privileges or higher.
- Step 2 Start a management session with the MPSM card using the **cc** command.
- Step 3 Configure a PPP link using the **cnfppplink** command as follows:

```
mpsm_node1.2.MPSM16T1E1 [ATM].a > cnfppplink -link <LinkId> [-mru <MRU> -lcpTimeout
<LCPTimeout> -ds0speed <ds0speed> -pfcTx <PFC> -acfcTx <ACFC> -lpbkCheck <loopCheck>]
```

Table 6-24 describes **cnfppplink** command parameters.

Table 6-24 *cnfppplink Command Parameters*

Parameter	Description
-link	Specifies the PPP link number. Enter the dsppplinks command to display all PPP links on the card.
-mru	The Maximum Receive Unit, in the range 64-1524
-lcpTimeout	The length of time to wait for a Echo Reply before bringing down LCP. The value is in msec, rounded down to the nearest 100 msec. Range 1000-4294967.
-ds0speed	DS0 Speed <ul style="list-style-type: none"> • 1 = 56K • 2 = 64K
-pfcTx	Controls the compression of PF in PPP packets transmitted from this end. <ul style="list-style-type: none"> • 1 = enable, PFC is performed if the far end is capable of receiving compressed PF. • 2= disable, PFC is not performed, even if far end is capable of receiving compressed PF.
-acfcTX	Controls the compression of address/control fields in PPP packets transmitted from this end. <ul style="list-style-type: none"> • 1 = enable, ACFC is performed if the far end is capable of receiving compressed address/control fields. • 2 = disable, ACFC is not performed, even if far end is capable of receiving compressed address/control fields.
-loopCheck	Controls loopback check. If loopback check is enabled, when the magic number in the incoming echo reply is the same as of this PPP link, then this PPP link assumes that the far end is in loopback and brings down its own LCP session. <ul style="list-style-type: none"> • 1 = Enable • 2 = Disable

In the following example, the user configures PPP link 1 with an MRU value of 1234, PFC transmit disabled, and ACFC transmit enabled.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > cnfppplink -link 1 -mru 1234 -acfcTx 1 -pfcTx 1
```

- Step 4** To verify PPP link configuration, use the **dsppplinks** or **dsppplink** command. See the “[Displaying PPP Links](#)” section on page 6-54.

Adding or Removing Links

You can add or remove links from an operational bundle to change the available bandwidth. To add a link to a MLPPP bundle, use the **addppplink** command. The link becomes operational after successful negotiation with the remote end. For more information about adding links, see the “[Adding Links to an MLPPP Bundle](#)” section on page 5-5.

To delete a link, enter the **delppplink <link>** command. Deleting a link sends a remove-link request message to the far-end of the link. The bundle stops transmitting data on the link after the remove-link request has been sent. However, data received on the link is processed until the acknowledgement for the remove-link request is received.

Managing PPPMUX

This section explains how to display, enable, or disable the PPPMUX feature.

Displaying PPPMUX

To display PPPMUX information, perform the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command
- Step 3** To display the operational status of PPPMUX by bundle, enter the **dspmpbundles** command. The MUX Status column shows the MUX status for each bundle.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dspmpbundles
MLPPP  Admin  Oper   Active  Available  Alarm      MUX      AutoBW
Bundle State  State  Links   Bandwidth  Cause     Status    Mode
-----
   1      Up    Up     1       1984000   No Alarm  Disable  Disable
   5      Up    Up     4       7936000   No Alarm  Enable   Enable
  13      Up    Up     4       7936000   No Alarm  Enable   Enable
```

- Step 4** To display PPPMUX information for a specific bundle, enter the **dsppppmux <bundleNumber>** command.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppppmux 5
Mux Bundle Number      : 5
Mux Protocol Status    : Active
MuxEnable State        : Enable
MuxOperStatus          : OperUp
DeMuxEnable State      : Enable
DeMuxOperStatus        : OperUp
DeMuxPID               : 33
DeMuxRemotePID         : 33
```

```

MuxTimer           : 600
MuxMaxSubFrameLength : 64
MuxMaxSubFrameCount : 15
MuxMaxFrameLength  : 256

```

Configuring PPPMUX

To configure PPPMUX, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command
- Step 3** To configure multiplexer parameters, enter the **cnfpppmux** command as follows.

```

M8850_SF.27.MPSM16T1E1PPP[FR].a > cnfpppmux -bundle <bundleNumber> [-pid <pid>
-muxTimer <multimer> -frameLength <length> -subFrameLength <length>
-subFrameCount <count>]

```

[Table 6-25](#) describes the parameters for the **cnfpppmux** command.

Table 6-25 *cnfpppmux Command Parameters*

Parameter	Description
-bundle	Specifies the MLPPP bundle number for which to configure PPPMUX. Note Enter the dspmpbundles command to display all MLPPP bundles on the card.
-pid	Default Protocol ID, in the range 0-65535
-muxTimer	Specifies the maximum length of time that the hardware multiplexes packets after multiplexing begins. Values: 0 (disabled), or 64-4000000 microseconds
-frameLength	Maximum mux frame length, in the range 1-512
-subFrameLength	Maximum sub-frame length, in the range 1-512
-subFrameCount	Maximum number of sub-frames in a multiplex super-frame, in the range 2-15.

In the following example, the user configures the multiplex timer on bundle 2 to 64.

```

M8850_SF.27.MPSM16T1E1PPP[FR].a > cnfpppmux -bundle 5-muxTimer 64

```

- Step 4** To verify PPPMUX configuration, enter the **dsppppmux** command. See the [“Displaying PPPMUX” section on page 6-57](#)

Enabling or Disabling PPPMUX

To enable or disable PPPMUX on a MLPPP bundle, enter the **addpppmux** command. For more information, see [“Adding PPPMUX to an MLPPP Bundle” section on page 5-9](#).

To disable PPPMUX on an MLPPP bundle, enter the **delpppmux** *<bundleNumber>* command, specifying the number of the bundle.

Deleting MLPPP Bundles, Links, and PPPMUX

MLPPP bundles, links, PPPMUX, and connections are interdependent, so you must delete them in the reverse order that you created them.

Use the following procedure to delete an MLPPP bundle, link, and port.

-
- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command
 - Step 3** Delete PPPMUX on a bundle by entering the **delpppmux** *<bundleNumber>* command.
 - Step 4** Delete MLPPP links by entering the **delppplnk** *<link>* command. Before deleting the last link, you must delete existing connections to the bundle.
 - Step 5** Delete the MLPPP bundle by entering the **delmpbundle** *<bundleNumber>* command. Before deleting the bundle, you must delete all links on the bundle.
 - Step 6** To verify the deletion of PPPMUX, MLPPP links, and bundle, enter the **dsppplinks** and **dspmpbundles** commands. See the “[Displaying MLPPP Bundles](#)” section on page 6-50 and the “[Displaying PPP Links](#)” section on page 6-54.
-

Displaying Statistics

This section explains how to display bundle, link, and PPPMUX statistics.

Displaying MLPPP Bundle Statistics

The MPSM collects PPP link statistics for PPP sessions between MPSM cards and MWR routers. These statistics consist of 96 buckets of 15-minute interval statistics, for a total of 24 hours of statistics.

To view MLPPP bundle statistics, perform the following procedure:

-
- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
 - Step 2** Start a management session with the MPSM card using the **cc** command
 - Step 3** Display MLPPP bundle statistics for the desired interval using the **dspmpbundlecnt** *<bundleNumber>* *<intvl>* command, specifying the bundle number and desired 15-minute interval number.

The following example shows how to display statistics for interval 1 of bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR] .a > dspmpbundlecnt 5 1
MLPPP Bundle Number      : 5
Interval Number          : 1

Receive Packets           :      1620
Receive Bytes             :      88380
Receive Discard Bytes     :           0
Receive MRRU Error Packets :           0
Receive Discard Packets   :           0
```

```

Receive FCS Error Packets :      0
Send Packets              :     1620
Send Bytes                :     88380

```

Table 6-26 lists the bundle statistics displayed. The send direction is towards the line.

Table 6-26 MLPPP Bundle Statistics

Counter	Description
Receive Packets	The number of frames received
Receive Bytes	The number of bytes received
Receive Discard Bytes	The number of bytes discarded for any error
Receive MRRU Errors	The number of MRRU error packets
Receive Miscellaneous Errors	The number of packets with miscellaneous errors
Receive FCS Error packets	The number of packets with FCS errors (MPSM-16-T1E1 only)
Send Packets	The number of packets transmitted on this bundle
Send Bytes	The number of bytes transmitted on this bundle

- Step 4** To clear statistics for a bundle, enter the **clrmppbundlecnt** *<bundleNumber>* command, specifying the bundle number to clear.

Displaying PPP Link Statistics

The MPSM collects PPP link statistics for PPP Sessions between MPSM and MWR. These statistics consist of 96 buckets of 15-minute interval statistics, for a total of 24 hours of statistics.

To view PPP link statistics, perform the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command
- Step 3** Display statistics for the desired link using the **dsppppplnkcnt** *<link>* *<intvl>* command, specifying the link number and desired 15-minute interval number.

The following example displays statistics for interval 0 of link 1.

```

M8850_SF.27.MPSM16T1E1PPP[FR] .a > dsppppplnkcnt 1 0
MLPPP Link Number      : 1
Interval Number       : 0

Receive Packets        :      164
Receive Bytes         :     2296
Receive Discard Bytes  :          0
Receive MRU Errors     :          0
Receive FCS Error Packets :          0
Receive Miscellaneous Errors :          0
Send Packets          :      164
Send Bytes           :     2296

```

Table 6-27 lists the PPP link statistics displayed. The send direction is towards the line.

Table 6-27 PPP Link Statistics

Counter	Description
Receive Packets	The number of frames received
Receive Bytes	The number of bytes received
Receive Discard Bytes	The number of bytes discarded for any error
Receive MRU Errors	The number of MRRU Error Packets
Receive Discard Packets	The number of packets discarded for any error
Receive FCS Error packets	The number of packets with FCS errors (MPSM-16-T1E1 only)
Send Packets	The number of packets transmitted on this bundle
Send Bytes	The number of bytes transmitted on this bundle

- Step 4** To clear PPP statistics for a link, enter the **clrppplinkcnt** *<link>* command, specifying the link number to clear.

Displaying PPPMUX Statistics

To view PPPMUX statistics, perform the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command
- Step 3** Display statistics for the desired link using the **dsppppmuxcnt** *<link>* *<intvl>* command, specifying the bundle number and desired 15-minute interval number.

The following example shows how to display PPPMUX statistics for interval 1 of bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppppmuxcnt 5 1
MLPPP MUX Number      : 5
Interval Number       : 1

Receive Subframes     :          0
Receive Packet        :          0
Receive Error Packets :          0
Send Sub Frames       :          0
Send Packets          :          0
Send Non-Mux Packets  :          1620
```

Table 6-28 describes the display.

Table 6-28 MLPPP PPPMUX Statistics

Counter	Description
MLPPP MUX Number	Bundle number associated with the PPPMUX
Interval Number	15-minute interval number
Receive Subframes	Number of PPPMux frames received
Receive Packet	Number of extracted PPP packets

Table 6-28 MLPPP PPPMUX Statistics (continued)

Counter	Description
Receive Error Packets	Number of PPPMux frames with demultiplex errors
Send Sub Frames	Number of PPPMux frames transmitted
Send Packets	Number of PPP packets multiplexed
Send Non-Mux Packets	Number of PPP packets not muxed

- Step 4** To clear PPPMUX statistics for a bundle, enter the **clrpppmuxcnt** *<bundleNumber>* command, specifying the bundle number to clear.

Displaying Operational Loads

You can display the following operational loads:

- Interval packet and byte loads by WinPath resource
- Interval packet and byte loads by bundle

To display the operational loads, perform the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command.
- Step 3** To display WinPath loads on the current card, enter the **dspwinpathload** command.

```
M8850_SF.9.MPSM155PPP[FR].a > dspwinpathload <winpath> <intvl>
```

Table 6-29 describes the parameters for the **dspwinpathload** command.

Table 6-29 dspwinpathload Command Parameters

Parameter	Description
<i>winpath</i>	The number of the WinPath packet processing engine for which to display loads. Range: 1-2.
<i>intvl</i>	The number of previous intervals to display, in the range 0–96. Interval 0 is the current interval and interval 96 is the oldest 15-minute interval.

The following example displays the current and three previous intervals for the operational load on WinPath 1.

```
M8850_SF.9.MPSM155PPP[FR].a > dspwinpathload 1 3
Winpath : 1
  Intval  Duration  Rx Packet/s  Tx Packet/s  Rx Bytes/s  Tx Bytes/s
  0       4min 18s    259          259          3108        3108
  1       15min 0s    900          900          10800       10800
  2       15min 0s    898          898          10776       10776
  3       15min 0s    900          910          10800       10980
```

- Step 4** To list bundle loads on the current card, enter the **dspmpbundleload** command.

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundleload <bundleNumber> <intvl>
```


Table 6-30 describes the parameters for the **dspmpbundleload** command.

Table 6-30 *dspwinpathload Command Parameters*

Parameter	Description
<i>bundleNumber</i>	Specifies the MLPPP bundle number. Note Enter the dspmpbundles command to display all MLPPP bundles on the card.
<i>intvl</i>	The number of previous intervals to display, in the range 0–96. Interval 0 is the current interval and interval 96 is the oldest 15-minute interval.

The following example displays the current and three previous intervals for the operational load on bundle 2.

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundleload 2 3
MLPPP Bundle Number      : 2
Intval   Duration      Rx Packets/s  Tx Packets/s  Rx Bytes/s  Tx Bytes/s
-----
0        4min 26s      0             0             4           4
1        15min 0s      0             0             4           4
2        15min 0s      0             0             4           4
3        15min 0s      0             0             4           4
```

Displaying Load Assignments

This section explains how to display the assignment of MLPPP bundles to WinPath packet processing engines. Each processing engine can handle up to 64 bundles with up to 2016 DS0s. The software maps new MLPPP bundles to the WinPath with the smallest current load; users cannot configure WinPath resource assignments. Use this procedure to display the following:

- Assignment of bundles to WinPath resources
- Number of bundles and DS0s configured for each WinPath

To display WinPath resource assignments, perform the following procedure:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** Start a management session with the MPSM card using the **cc** command.
- Step 3** To list WinPath resource assignments on the current card, enter the **dspwpbundles** command.

```
M8850_SF.9.MPSM155PPP[FR].a > dspwpbundles
```

```
WinpathNum      BundleId
-----
1                1
1                3
2                2
```

- Step 4** To list the number of bundles and DS0s for each WinPath, enter the **dsptotals** command.

```
M8850_SF.9.MPSM155PPP[FR].a > dsptotals
Interfaces Total Max Admin Up Available Alarm
Physical Lines      2      1      1      0
```

Sonet STS/SDH-AU	3	1	2	0
Sonet/SDH-TU	21	12	9	0
DS3	0	0	0	0
E3	0	0	0	0
DS1	0	0	0	0
E1	21	12	9	2
MP Bundles	84	3	81	0
PPP Links	84	7	77	0
	winpath	Total Max	Configured	
MpBundles on WP	1	64	2	
MpBundles on WP	2	64	1	
Config BW on WP	1	2016 DS0s	105 DS0s	
Config BW on WP	2	2016 DS0s	62 DS0s	
Interfaces	Total Max	Configured	Available	Alarm
FR Ports	1000	3	997	0
FR Connections	4000	0	4000*	0

Managing Resource Partitions

Resource partitions define how switch resources are distributed between two or more virtual switch controllers. Release 5 supports only the PNNI controller on service modules.

The PNNI controller resources include the following:

- Range of DLCI values
- Maximum percent of bandwidth in the ingress and egress directions
- Maximum number of connections
- Minimum and Maximum DLCI values

You configure partitions to control how these connection resources are distributed among the switch, card, and ports within the Cisco MGX 8850/8830 switch. Without these partitions, two or three busy ports could consume all the available connections, thereby disabling communications on all other ports.

On MPSM-T3E3-155 and MPSM-16-T1E1 cards, resource partitions are managed on the port level. During normal operation of the cards, you do not need to add port resource partitions. Port resource partitions are created automatically when you add a port to a line or path.

You can view the port resource partition configuration, make changes to it, or delete it. If you delete a port resource partition, you must to add a new partition for that port before you can assign connections to the port.

The commands used to display, configure, and delete resource partitions differ depending on the service context of port hosting the resource partition. The following sections describe resource partitions for the ATM and Frame relay contexts:

- [ATM Port Resource Partitions](#)
- [Frame Relay Port Resource Partitions](#)

ATM Port Resource Partitions

The following tasks describe how to manage ATM port resource partitions on the MPSM-T3E3-155 and MPSM-16-T1E1:

- [Displaying an ATM Resource Partition](#)
- [Configuring an ATM Resource Partition](#)
- [Deleting an ATM Resource Partition](#)

Displaying an ATM Resource Partition

Use the following procedure to display a list of the resource partitions configured on an MPSM-T3E3-155 or MPSM-16-T1E1 card, or to display configuration information for a particular resource partition on the card.

- Step 1** Establish a CLI management session at any level of user access and enter the **cc** command to change to the appropriate card.

If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [FR] .a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 2** To display information for all ATM port resource partitions configured on the current card, enter the **dspparts** command as shown in the following example.

```
M8830_CH.12.MPSM155 [ATM] .a > dspparts
if part Ctlr egr egr ingr ingr min max min max min max
Num ID ID GuarBw MaxBw GuarBw MaxBw vpi vpi vci vci conn conn
      (.0001%) (.0001%) (.0001%) (.0001%)
-----
 5  1  2 1000000 1000000 1000000 1000000  0 4095  32 65535  0 4000
10  1  2 1000000 1000000 1000000 1000000  0 4095  32 65535  0 4000
```

- Step 3** To display configuration information for a particular resource partition on the current card, select the *ifNum* and the *partID* of the resource partition you want to display, and enter the **dsppart** *<ifNum>* *<partID>* command.

The following example shows typical output from a **dsppart** command that specifies the ATM port number 5 and partition ID number 1.

```
M8830_CH.12.MPSM155 [ATM] .a > dsppart 5 1
Interface Number      : 5
Partition Id          : 1          Number of SPVC      : 0
Controller Id         : 2          Number of SPVP      : 0
egr Guaranteed bw(.0001percent): 1000000 Number of SVC       : 0
egr Maximum bw(.0001percent)  : 1000000 Number of Sig VC    : 0
ing Guaranteed bw(.0001percent): 1000000
ing Maximum bw(.0001percent)  : 1000000
min vpi                : 0
max vpi                : 4095
min vci                : 32
max vci                : 65535
```

```

guaranteed connections      : 0
maximum connections         : 4000

```

Configuring an ATM Resource Partition

To change the configuration of an ATM port resource partition, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** Enter the **dspparts** command to obtain the partition ID for the port partition you want to configure. The port number appears in the *if Num* column, and the partition ID appears in the *part ID* column.

```

M8830_CH.12.MPSM155[ATM].a > dspparts
if part Ctlr egr      egr      ingr      ingr      min max  min  max  min  max
Num ID  ID   GuarBw  MaxBw   GuarBw  MaxBw   vpi vpi   vci  vci  conn conn
              (.0001%) (.0001%) (.0001%) (.0001%)
-----
 5   1   2   10000 1000000 1000000 1000000  0 4095  32 65535  0 4000

```

- Step 4** To modify the configuration of an ATM port resource partition, enter the **cnfpart** command as follows.

```

mgx8850a.10.MPSM155[ATM].a > cnfpart -if <if> -id <partitionID> -emin <egrMinBw>
-emax <egrMaxBw> -imin <ingMinBw> -imax <ingMaxBw> -vpmin <minVpi> -vpmax <maxVpi>
-vcmin <minVci> -vcmax <maxVci> -mincon <min connections> -maxcon <max connections>

```

Table 6-31 describes **cnfpart** command arguments.

Table 6-31 *cnfpart* Command Keywords and Arguments—ATM CLI Context

Argument	Description
-if	Interface number (partition number) of the partition to configure. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4–499 MPSM-T3E3-155 range: 4–1003 <p>Note To view all active ATM partitions, use the dspparts command in the ATM CLI context.</p>
-id	A number that identifies the partition, in the range 1–20.
-emin	A guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001–percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.
-emax	A maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001–percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.

Table 6-31 *cnfpart* Command Keywords and Arguments—ATM CLI Context (continued)

Argument	Description
-imin	A guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)
-imax	A maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.
-vpmin	Minimum VPI for the partition: <ul style="list-style-type: none"> UNI range 0–255 NNI or VNNI range: 0–4095
-vpmax	Maximum VPI for the partition <ul style="list-style-type: none"> UNI range 0–255 NNI or VNNI range: 0–4095 The <i>max_vpi</i> cannot be less than the <i>min_vpi</i> .
-vcmin	Minimum VCI, in the range from 1–65535
-vcmax	Maximum VCI, in the range from 1–65535 The <i>max_vci</i> cannot be less than the <i>min_vci</i> .
-mincon	Guaranteed number of connections. Value: 0 only
-maxcon	A maximum number of connections. Range 10–2000

- Step 5** To verify the resource partition configuration, enter the **dsppart** *<ifNum>* *<partID>* command to display the configuration.

Deleting an ATM Resource Partition

Normally, you do not need to manually delete an ATM resource partition. When you delete an ATM port, the MPSM automatically deletes the associated partition. If you delete a port resource partition, you must add a new partition for that port before you can assign connections to the port.

To manually delete an ATM port resource partition, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [FR] .a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To display a list of the partitions for the card, enter the **dspparts** command as shown in the following example. Note the interface number and controller number for the resource partition you plan to delete.

```
M8830_CH.12.MPSM155 [ATM] .a > dspparts
if part Ctlr egr      egr      ingr      ingr      min max      min  max      min  max
Num ID  ID  GuarBw MaxBw  GuarBw MaxBw  vpi vpi      vci  vci      conn conn
                (.0001%) (.0001%) (.0001%) (.0001%)
-----
  5  1   2  10000 1000000 1000000 1000000 0 4095    32 65535    0  4000
```

- Step 4** To display a list of all active connections on the current card, enter the **dspscons** command as shown in the following example. Determine if the interface to which the partition is assigned is being used by a connection.



Note The *Identifier* column identifies the interface numbers, the VPI, and VCI for each connection. If the interface is in use, note the interface number, the VPI, and the VCI values of all connections using the interface, because you will need these values to delete the connections.

```
M8830_CH.12.MPSM155 [ATM] .a > dspscons
record  Identifier  Type  SrvcType  M/S  Upld  Admn  Alarm
-----
      0  05 0100 00100  VCC      cbr1  S  00000011  UP  none
      1  10 0100 00100  VCC      cbr1  M  00000012  UP  none
```

- Step 5** Enter the **delcon** command as follows to delete any ATM connection that uses the interface whose partition you want to delete. If there are no connections that use the interface whose partitions you want to delete, skip this step.

```
M8830_CH.12.MPSM155 [ATM] .a > delcon <ifNum> <vpi> <vci>
```

Replace *<ifNum>* with the interface number of the port associated with the connection you want to delete. Replace *<vpi>* and *<vci>* with the VCI and VPI of the connection you want to delete.



Note You must enter the **delcon** command one time for each connection that uses the interface whose partition you want to delete.

In the following example, the user deletes the connection on port 5 with a VPI of 100 and a VCI of 100.

```
M8830_CH.12.MPSM155 [ATM] .a > delcon 5 100 100
Deletion successful
```

- Step 6** To delete the resource partition, enter the **delpart** command as follows.

```
mgx8850a.10.MPSM155 [FR] .a > delpart <ifNum> <partID>
```

Replace *<ifNum>* with the interface number of the port whose partition you want to delete. Replace *<ctrlNum>* with the number 2, which represents the PNNI controller.

- Step 7** To verify that the appropriate partition is deleted, enter the **dspparts** command.

Frame Relay Port Resource Partitions

The following tasks describe how to manage Frame Relay port resource partitions on the MPSM-T3E3-155 and MPSM-16-T1E1:

- [Displaying a Frame Relay Resource Partition](#)
- [Configuring a Frame Relay Resource Partition](#)
- [Deleting a Frame Relay Resource Partition](#)

Displaying a Frame Relay Resource Partition

To display summary or detail information about the resource partitions, perform the following steps.

Step 1 Establish a CLI management session at any level of user access and enter the **cc** command to change to the appropriate card.

Step 2 If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM] .a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

Step 3 Enter the **dspparts** command to display information for all the Frame Relay port resource partitions configured on the current card, as shown in the following example.

```
mpsm_node.5.MPSM155 [FR] .a > dspparts
if      Ctlr  Ctlr  available  min      max      ingr      egr
Num    Num   ID    LCNs      DLCI     DLCI     PctBw     PctBw
-----
   2    pnni   2     4000      0        1023     100       100
  50    pnni   2     2000      0        1023     100       100
```

Step 4 To display configuration information for a particular resource partition on the current card, obtain the *ifNum* and the *CtrlNum* of the resource partition you want to display, and enter the **dsppart** command as follows:

```
M8850_LA.10.MPSM155 [FR] .a > dsppart <ifNum> <CtrlNum>
```

Replace the *<ifNum>* argument with the interface number of the selected port; replace the *<CtrlNum>* argument with the PNNI controller ID number for the selected port.



Note In Release 5, the MPSM supports the PNNI controller only.

The following example shows typical output from a **dsppart** command that specifies the Frame Relay port number 10 and controller ID number 2.

```
M8850_LA.10.MPSM155 [FR] .a > dsppart 10 2
Interface Number      : 10
  Partition Id        : pnni          Number of SPVC: 1000
  Controller Id       : 2
  Available LCNs      : 1000
  Min dlci            : 0
```

```

Max dlci           : 65535
Ing Percentage bw  : 100
Egr Percentage bw  : 100

```

Configuring a Frame Relay Resource Partition

To change the configuration of a specific Frame Relay port resource partition, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the appropriate card.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM] .a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** Obtain the partition ID for the port partition you want to configure by entering the **dspparts** command. The port number appears in the if Num column, and the partition ID appears in the part ID column.

```

mpsm_node.5.MPSM155 [FR] .a > dspparts
if      Ctlr  Ctlr  available  min    max    ingr    egr
Num     Num   ID    LCNs      DLCI   DLCI   PctBw  PctBw
-----
   2    pnni    2     4000      0     1023   100    100
  50    pnni    2     2000      0     1023   100    100

```

- Step 4** Modify the configuration of a particular Frame Relay port resource partition by entering the **cnfpart** command as follows:

```

mgx8850a.10.MPSM155 [FR] .a > cnfpart <ifNum> <ctrlNum> [-lcn <available connections>]
[-dlcimin <minDlci>] [-dlcimax <maxDlci>] [-ibw <ingPctBw>] [-ebw <egrPctBw>]

```

Table 6-32 describes **cnfpart** command arguments.

Table 6-32 Keywords and Arguments for the **cnfpart** Command in the Frame Relay CLI Context

<i>ifNum</i>	<p>Specifies the interface number (partition number) of the partition to add.</p> <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1–499 MPSM-T3E3-155 range: 1–1003 <p>Identifies the logical interface to which you want to add a resource partition.</p> <p>Note To view all active partitions, use the dspparts command in the Frame Relay CLI context.</p>
--------------	---

Table 6-32 Keywords and Arguments for the *cnfpart* Command in the Frame Relay CLI Context

<i>ctrlNum</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. Note Release 5 of the MPSM-T3E3-155 supports only the PNNI controller (option 2). TAG switching (option 1) and MPLS (option 3) are not supported on the MPSM-T3E3-155 card.
-lcn	Maximum number of connections. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 0–2000 MPSM-T3E3-155 range: 0–4000
-dlcimin	Minimum DLCI value. <ul style="list-style-type: none"> 2-byte header range: 0–1023 4-byte header range: 0–8355840 in multiples of 32,768 <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32,768:</p> <p>0 = (0 x 32768) 163840 = (5 x 32768) 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>
-dlcimax	Maximum DLCI value. <ul style="list-style-type: none"> 2-byte header range: 0–1023 4-byte header range: 32,767–8,355,840 in multiples of 32,768 minus 1 <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32,768 minus 1:</p> <p>32767 = (32768 * 1) – 1 163839 = (32768 * 5) – 1 6520831 = (32768 * 199) – 1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p>
-ibw	Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0–100 percent.
-ebw	Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0–100 percent.

Step 5 To display and verify the modified resource partition configuration, enter the **dsppart** command.

Deleting a Frame Relay Resource Partition

You usually do not need to manually delete a resource partition. When you delete a Frame Relay port, the MPSM automatically deletes the partition for that port. If you delete a port resource partition, you must add a new partition for that port before you assign connections to the port.

To manually delete a Frame Relay port resource partition, perform the following steps:

Step 1 Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the appropriate card.

Step 2 If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[ATM].a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

Step 3 To display a list of the partitions for the card, enter the **dspparts** command as shown in the following example. Note the interface number and controller number for the resource partition you plan to delete.

```
M8830_CH.12.MPSM155[FR].a > dspparts
```

if Num	Ctlr Num	Ctlr ID	available LCNs	min DLCI	max DLCI	ingr PctBw	egr PctBw
20	pnni	2	1	0	1023	100	100
30	pnni	2	1	0	1023	100	100
40	pnni	2	1	0	1023	100	100

Step 4 To display a list of all active connections on the current card, enter the **dspscons** command as shown in the following example. Determine if the interface to which the partition is assigned is being used by a connection.

```
mgx8850a.10.MPSM155[FR].a > dspscons
```

record	Identifier	SrvcType	M/S	Upld	Admn	Alarm
1	01 0000100	High Priority	S	01417863	UP	Multiple
2	01 0000101	High Priority	S	01417875	UP	Multiple
3	01 0000102	High Priority	S	01417875	UP	Multiple
4	01 0000103	High Priority	S	01417875	UP	Multiple
5	01 0000104	High Priority	S	01417875	UP	Multiple
6	01 0000105	High Priority	S	01417875	UP	Multiple
7	01 0000106	High Priority	S	01417875	UP	Multiple
8	01 0000107	High Priority	S	01417875	UP	Multiple
9	01 0000108	High Priority	S	01417875	UP	Multiple
10	01 0000109	High Priority	S	01417875	UP	Multiple
11	01 0000110	High Priority	S	01417876	UP	Multiple
12	02 0000200	High Priority	M	01417886	UP	E-AisRdi
13	02 0000201	High Priority	M	0141788d	UP	E-AisRdi
14	02 0000202	High Priority	M	0141788e	UP	E-AisRdi



Note The Identifier column identifies the interface numbers and DLCI values for the connection. If the interface is in use, note the DLCI values of all connections using the interface, because you will need these values to delete the connections.

Step 5 To delete any Frame Relay connection that uses the interface whose partition you want to delete, enter the **delcon** command as follows. If there are no connections that use the interface whose partitions you want to delete, skip this step.

```
mgx8850a.10.MPSM155[FR].a > delcon <ifNum> <DLCI>
```

Replace *<ifNum>* with the number of the interface whose connection you want to delete, and replace *<DLCI>* with the DLCI of the interface whose connection you want to delete.

In the following example, the user deletes the connection on port 2 with a DLCI of 200.

```
M8830_CH.12.MPSM155[FR].a > delcon 2 200
Deletion successful
```



Note You must enter the **delcon** command one time for each connection that uses the interface whose partition you want to delete.

Step 6 To delete the resource partition, enter the **delpart** command as follows.

```
mgx8850a.10.MPSM155[FR].a > delpart <ifNum> <ctrlNum>
```

Replace *<ifNum >* with the interface number of the port whose partition you want to delete. Replace *<ctrlNum>* with the number 2, which represents the PNNI controller.

Step 7 Verify that the appropriate partition is deleted by entering the **dspparts** command.

Managing Connections

The commands used to display, configure, a delete connections differ depending on the service context of port hosting the connection. The sections that follow describe the following types of connection management:

- [ATM Connections](#)
- [Frame Relay Connections](#)

ATM Connections

[Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#) describes how to add connections to ATM ports on MPSM-T3E3-155 and MPSM-16-T1E1 cards. The following sections describe:

- [Displaying All ATM Connections](#)
- [Displaying One ATM Connection](#)
- [Deleting ATM Connections](#)
- [Testing ATM Connections](#)

Displaying All ATM Connections

To display a list of all ATM connections on the current card, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the appropriate card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

Step 3 To display a list of all active ATM connections on the current card, enter the **dspscons** command:

```
M8830_CH.12.MPSM155[ATM].a > dspscons
record      Identifier      Type      Srvctype      M/S      Upd      Admn      Alarm
-----
0 05 0100 00100  VCC      cbr1      S      00000011     UP      none
1 10 0100 00100  VCC      cbr1      M      00000012     UP      none
```



Note The Identifier column identifies the interface number, VPI, and VCI for each connection on the current card. You need these values for any connection you want to display, configure, or delete.

Displaying One ATM Connection

To display the configuration and status of one ATM connection, perform the following steps:

Step 1 Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.

Step 2 If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

Step 3 To display a list of all active connections on the current card, enter the **dspscons** command as shown in the following example.

```
M8830_CH.12.MPSM155[ATM].a > dspscons
record      Identifier      Type      Srvctype      M/S      Upd      Admn      Alarm
-----
0 05 0100 00100  VCC      cbr1      S      00000011     UP      none
1 10 0100 00100  VCC      cbr1      M      00000012     UP      none
```

Step 4 To display the configuration and status of one connection on the current card, enter the **dspscon** command:

```
M8830_CH.12.MPSM155[ATM].a > dspscon <ifNum> <vpi> <vci>
```

Replace *<ifNum>* with the number of the interface whose connection you want to display. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection you want to display.

In the following example, the user displays the connection on port 5, with a VPI of 100 and a VCI of 100.

```
M8830_CH.12.MPSM155[ATM].a > dspscon 5 100 100
```

```

-----
Local   :          NSAP Address          vpi    vci
(M)     4700918100000000001A5389430000010C180500    100    100
Remote  :          NSAP Address          vpi    vci
(S)     47009181000000000001A5389430000010C180A00    100    100
-----

Conn. Type  :      VCC                    Admn Status :      ADMN-UP
Service Type :      cbr1                  Oper Status  :      OK
Controller  :      2                      Record #    :      3
SlavePersist :      YES                   Cast-type   :      P2P
-----

Local PCR   :      50                     Remote PCR   :      50
Local SCR   :      N/A                    Remote SCR   :      N/A
Local CDV   :      -1                     Remote CDV   :      -1
Local CTD   :      -1                     Remote CTD   :      -1
Local MBS   :      N/A                    Remote MBS   :      N/A
Max Cost    :      -1                     Frame discard:  DISABLED
Local CDVT  :      250000                 OAM segment :      ENABLED
Local PctUtil :      100                 Rmt PctUtil :      100
Priority     :      8
Pref Rte Id :      0                     Directed route:  NO
-----

Type <CR> to continue, Q<CR> to stop:
OAM CC Config :      DISABLED             Statistics   :      ENABLED
-----

Loopback Type : No  Lpbk | Dir: N/A      | Status: No Lpbk | RTD:      0us
-----

Port side Tx :      normal                Swth side Tx :      normal
Port side Rx :      normal                Swth side Rx :      normal
-----

I-AIS/RDI   E-AIS/RDI   CONDITIONED   CCFAIL   IfFail   Mismatch   LMI-ABIT
NO           NO           NO           NO       NO       NO         NO
-----

```

Deleting ATM Connections

To delete an ATM connection, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155 [FR] .a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To delete an ATM connection, enter the **delcon** command as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > delcon <ifNum> <vpi> <vci>
```

Replace *<ifNum>* with the number of the interface whose connection you want to delete. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection you want to display.



Note To obtain the interface number, VPI, and VCI of a connection, enter the **dspecons** command.

In the following example, the user deletes the connection on port 5 with a VPI of 100 and a VCI of 100.

```
M8830_CH.12.MPSM155[ATM] .a > delcon 5 100 100
Deletion successful
```

Testing ATM Connections

The following sections describe how to test the integrity of ATM connections in the ingress and egress direction:

- [Testing ATM Connections in the Egress Direction](#)
- [Testing ATM Connections in the Ingress Direction](#)
- [Displaying ATM Connection Test Results](#)

Testing ATM Connections in the Egress Direction

The **tstcon** command checks to see if the switch can communicate with both ends of the connection in the egress direction. To test the egress direction of a ATM connection, enter the **tstcon** command in the ATM CLI context as follows:

```
M8830_CH.12.MPSM155[ATM] .a > tstcon <ifNum> vpi <vci> [-num <iterations>]
```

Replace *<ifNum>* with the number of the interface whose connection you want to test. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection you want to display. To specify the number of times a collection of supervisory cells traverses the connection, enter the optional **-num** keyword, followed by the number of consecutive times you want to run the test on the specified connection. You can run a test up to 10 times for one execution of the **tstcon** command.



Note If you do not specify the **-num <iterations>** option, the test runs one time only.



Note To obtain the interface number, VPI, and VCI of a connection, enter the **dspecons** command.

In the following example, the user runs 3 consecutive tests in the egress direction of the connection on port 10, VPI 100, VCI 100.

```
M8830_CH.12.MPSM155[ATM] .a > tstcon 10 100 100 -num 3
tstconseq is in progress ..
Connection Id      Test Type      Direction      Result      Round Trip Delay
=====
10.0100.00100:    OAM Lpbk      egress         Success     20119 microsec
tstconseq is in progress ..
Connection Id      Test Type      Direction      Result      Round Trip Delay
=====
10.0100.00100:    OAM Lpbk      egress         Success     20120 microsec
tstconseq is in progress ..
Connection Id      Test Type      Direction      Result      Round Trip Delay
```

```

=====
10.0100.00100:   OAM Lpbk   egress   Success   20122 microsec

```

Testing ATM Connections in the Ingress Direction

The **tstdelay** command checks to see if the switch can communicate with both ends of the connection in the ingress direction, and it returns a measurement of the delay across the connection. To test the ingress direction of an ATM connection, enter the **tstdelay** command in the ATM CLI context as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > tstdelay <ifNum> <vpi> <vci> [-num <iterations>]
```

Replace *<ifNum>* with the number of the interface whose connection you want to test. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection you want to display. To specify the number of times a collection of supervisory cells traverses the connection, enter the optional **-num** keyword, followed by the number of consecutive times you want to run the test on the specified connection. You can run a test up to 10 times for one execution of the **tstdelay** command.



Note

If you do not specify the **-num <iterations>** option, the test runs one time only.



Note

To obtain the interface number, VPI, and VCI of a connection, enter the **dspscons** command.

In the following example, the user runs 2 consecutive tests the connection on port 10, VPI 100, VCI 100.

```

M8830_CH.12.MPSM155 [ATM] .a > tstdelay 10 100 100 -num 2
tstdelay is in progress ..
Connection Id   Test Type   Direction   Result   Round Trip Delay
=====
10.0100.00100:   OAM Lpbk   ingress     Success   80137 microsec
tstdelay is in progress ..
Connection Id   Test Type   Direction   Result   Round Trip Delay
=====
10.0100.00100:   OAM Lpbk   ingress     Success   80136 microsec

```

Displaying ATM Connection Test Results

Enter the **dspchantest** command in the ATM CLI context as follows to display the results of the last test that was run on a connection with the **tstcon** command or **tstdelay** command.

```
M8830_CH.12.MPSM155 [ATM] .a > dspchantest <ifNum> <vpi> <vci> [-num <iteration>]
```

Replace *<ifNum>* with the number of the interface whose connection test results you want to display. Replace *<vpi>* with the VPI of the connection whose test results you want to display. Replace *<vpi>* and *<vci>* with the VPI and VCI of the connection you want to display. To specify the number of tests whose results you want to display, enter the options **-num** keyword, followed by the number of consecutive connections whose test results to display. You can display test results for up to 10 connections.



Note

The **dspchantest** command displays the results of the last test run on the specified number of connections, regardless of whether it was a **tstcon** test or a **tstdelay** test.



Note

If you do not specify the **-num <iterations>** option, the test displays only the results for the last test that was run on the specified connection.

**Note**

To obtain the interface number, VPI, and VCI of a connection, enter the **dspscons** command in the ATM CLI context.

In the following example, the user displays the results for the last test that was run on the connection on port 10, VPI 100, VCI 100.

```
M8830_CH.12.MPSM155[ATM].a > dspschantests 10 100 100
Connection Id      Test Type      Direction      Result      Round Trip Delay
=====
10.0100.00100:    OAM Lpbk      ingress        Success      80136 microsec
```

Frame Relay Connections

Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1.” describes how to add Frame Relay connections to MPSM-T3E3-155 and MPSM-16-T1E1 cards. The following sections provide procedures for the following tasks:

- [Displaying all Frame Relay Connections](#)
- [Displaying One Frame Relay Connection](#)
- [Deleting Frame Relay Connections](#)
- [Testing Frame Relay Connections](#)

These procedures apply to the MPSM-T3E3-155 and MPSM-16-T1E1 in the Frame Relay context, and the MPSM-16-T1E1 in the PPP mode.

Displaying all Frame Relay Connections

To display a list of Frame Relay connections on the current card, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context, as shown in the following example:

```
M8830_CH.12.MPSM155[ATM].a > setctx fr
```

**Note**

The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** Enter the **dspscons** command as shown in the following example to display a list of all active connections on the current card.

**Note**

The Identifier column identifies the interface numbers and DLCI values for each connection on the current card. You will need these values for any connection you want to display, configure, or delete.

```
mgx8850a.10.MPSM155[FR].a > dspscons
```


record	Identifier	Srvctype	M/S	Upd	Admn	Alarm
1	01 0000100	High Priority	S	01417863	UP	Multiple
2	01 0000101	High Priority	S	01417875	UP	Multiple
3	01 0000102	High Priority	S	01417875	UP	Multiple
4	01 0000103	High Priority	S	01417875	UP	Multiple
5	01 0000104	High Priority	S	01417875	UP	Multiple
6	01 0000105	High Priority	S	01417875	UP	Multiple
7	01 0000106	High Priority	S	01417875	UP	Multiple
8	01 0000107	High Priority	S	01417875	UP	Multiple
9	01 0000108	High Priority	S	01417875	UP	Multiple
10	01 0000109	High Priority	S	01417875	UP	Multiple
11	01 0000110	High Priority	S	01417876	UP	Multiple
12	02 0000200	High Priority	M	01417886	UP	E-AisRdi
13	02 0000201	High Priority	M	0141788d	UP	E-AisRdi
14	02 0000202	High Priority	M	0141788e	UP	E-AisRdi

Displaying One Frame Relay Connection

To display the configuration and status of a single Frame Relay connection, perform the following steps:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher, and enter the **cc** command to change to the card.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context as shown in the following example:

```
M8830_CH.12.MPSM155 [ATM] .a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To display a list of all active connections on the current card, enter the **dspcon** command:

```
M8830_CH.12.MPSM155 [FR] .a > dspcon <ifNum> <DLCI>
```

Replace *<ifNum>* with the number of the interface whose connection you want to display, and replace *<DLCI>* with the DLCI of the connection you want to display.

In the following example, the user displays the connection on port 20, DLCI 100.

```
M8830_CH.12.MPSM155 [FR] .a > dspcon 20 100
```

```
-----
Local      :                NSAP Address                vpi    vci
(S)        470091810000000001A5389430000010C1FFF00    38     100
Remote    :                NSAP Address                vpi    vci
(M)        47009181000000000001A5389430000010C1FFF00    58     100
-----
```

```
-----
Port Number      : 20                DLCI      : 100
Conn. Type       : frForward         Chan Service Type: uBR
Conn Service Type : ubr1             Egress Queue Type: lowPriority
Admn Status      : UP                Oper Status  : OK
Slave Persist    : N/A              Max Cost    : N/A
CIR (bps)        : 10000             BC (bytes)   : 10300
BE (bytes)       : 10300             FECN Config  : setEFCIzero
ChanDEtoCLPmap  : setCLPzero         ChanCLPtoDEmap : ignoreCLP
-----
```

```

IngrPercentUtil   : 100                      EgrPercentUtil   : 100
EgrSrvRate (bps)  : 10000                     ZeroCirEir (bps) : N/A
DE Tagging        : DISABLED                   IgnoreIncomingDE : DISABLED
Pref Rte Id       : 0                          Directed Route    : NO
Upload            : 00000019                   Routing Priority  : 0
OAM CC Config     : DISABLED                   Statistics        : ENABLED
Local Loopback    : DISABLED                   UPC               : ENABLED
-----

```

Type <CR> to continue, Q<CR> to stop:

```

Local PCR (cps)   : 38                          Remote PCR (cps) : 38
Local SCR (cps)   : N/A                          Remote SCR (cps) : N/A
Local MCR (cps)   : N/A                          Remote MCR (cps) : N/A
                  :                               Remote MBS (cps) : N/A
-----

```

```

Xmt Abit State    : A equal 1                    Rcv Abit State   : OFF
Xmt ATM State     : Not Sending                   Rcv ATM State    : Not Recving
-----

```

```

E-AIS/RDI   CONDITIONED  CCFAIL  IfFail  Mismatch  LMI-ABIT
   NO         NO          NO      NO      NO       NO
-----

```

```
M8830_CH.12.MPSM155[FR].a >
```

Deleting Frame Relay Connections

Use the following procedure to delete a Frame Relay connection:

- Step 1** Establish a configuration session using a username with Group1 privileges or higher.
- Step 2** If you are in the ATM CLI context, enter the **setctx fr** command to change to the Frame Relay CLI context as shown in the following example:

```
M8830_CH.12.MPSM155[ATM].a > setctx fr
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** To delete a Frame Relay connection, enter the **delcon** command as follows.

```
mgx8850a.10.MPSM155[FR].a > delcon <ifNum> <DLCI>
```

Replace <ifNum> with the number of the interface whose connection you want to delete, and replace <DLCI> with the DLCI of the interface whose connection you want to delete.



Note To obtain the interface number and DLCI of a connection, enter the **dspon** command.

In the following example, the user deletes the connection on port 2 with a DLCI of 200.

```
M8830_CH.12.MPSM155[FR].a > delcon 2 200
Deletion successful
```

Testing Frame Relay Connections

The following sections describe how to test the integrity of Frame Relay connections in the ingress and egress direction:

- [Testing Frame Relay Connections in the Egress Direction](#)
- [Testing Frame Relay Connections in the Ingress Direction](#)
- [Displaying Frame Relay Connection Test Results](#)

Testing Frame Relay Connections in the Egress Direction

The **tstcon** command checks to see if the switch can communicate with both ends of the connection in the egress direction. To test the egress direction of a Frame Relay connection with the **tstcon** command, enter the **tstcon** command in the Frame Relay CLI context, as follows:

```
M8830_CH.12.MPSM155[FR].a > tstcon <ifNum> <dLci>
```

Replace <ifNum> with the number of the interface whose connection you want to test. Replace <dLci> with the DLCI of the connection you want to test.



Note

To obtain the interface number, VPI, and VCI of a connection, enter the **dspscons** command in the Frame Relay CLI context.

In the following example, the user tests the connection on port 20, DLCI 100.

```
M8830_CH.12.MPSM155[FR].a > tstcon 20 100
tstcon is in progress ..
Connection Id      Test Type          Result             Round Trip Delay
=====          =====          =====          =====
20.0000100        Test Con           Passed
```

Testing Frame Relay Connections in the Ingress Direction

The **tstdelay** command checks to see if the switch can communicate with both ends of the connection in the ingress direction, and it returns a measurement of the delay across the connection. To test the ingress direction of a Frame Relay connection, enter the **tstdelay** command in the Frame Relay CLI context as follows:

```
M8830_CH.12.MPSM155[FR].a > tstdelay <ifNum> <dLci>
```

Replace <ifNum> with the number of the interface whose connection you want to test. Replace <dLci> with the DLCI of the connection you want to test.



Note

Enter the **dspscons** command in the Frame Relay CLI context to obtain the interface number and DLCI of a connection.

In the following example, the user runs 5 consecutive tests the connection on port 20, DLCI 100.

```
M8830_CH.12.MPSM155[FR].a > tstdelay 20 100
tstdelay is in progress ..
Connection Id      Test Type          Result             Round Trip Delay
=====          =====          =====          =====
20.0000100        Test Delay         Passed             19905 microsec
```

Displaying Frame Relay Connection Test Results

Enter the **dspchantest** command in the Frame Relay CLI context as follows to display the results of the last test that was run on a connection using the **tstcon** command or the last **tstdelay** command.

```
M8830_CH.12.MPSM155[FR].a > tstdelay <ifNum> <dLci>
```

Replace *<ifNum>* with the number of the interface whose connection test results you plan to display. Replace *<dLci>* with the DLCI of the connection whose test results you plan to display.



Note

You cannot specify whether you want to display results for the **tstcon** or **tstdelay** tests. The **dspchantest** command shows the results of the last test run on the specified connection, regardless of whether it was a **tstcon** or **tstdelay** test.



Note

To obtain the interface number and DLCI of a connection, enter the **dspcons** command in the Frame Relay CLI context.

In the following example, the user displays the results for the last test that was run on the connection on port 20, DLCI 100.

```
M8830_CH.12.MPSM155[FR].a > dspchantest 20 100 -num 2
Connection Id    Test Type      Result          Round Trip Delay
=====
20.0000100      Test Delay     Passed          19905 microsec
30.0000100      No Test       Not In Progress
```

Verifying PNNI Communication

After setting up trunks or when problems occur, use the procedures in this section to determine if PNNI is operating. The next section describes how to verify PNNI communications on one trunk. The following section describes how to verify PNNI communications between two nodes, which can be separated by multiple PNNI links.

Verifying PNNI Trunk Communication

After you configure both ends of a PNNI trunk, prepare the trunk to support SVCs and any configured SPVCs or SPVPs. To verify that the trunk is functioning, use the following procedure.

-
- Step 1** Establish a CLI session with the active PXM using a username at any access level.
- If you are configuring a point-to-point (P2P) connection where both ends of the trunk are connected to Cisco MGX 8850 (PXM1E/PXM45) or Cisco MGX 8830 switches, you can start the CLI session at either end of the connection.
- If you are configuring a point-to-multipoint (P2MP) connection where both ends of the trunk are connected to Cisco MGX 8850 (PXM1E/PXM45) or Cisco MGX 8830 switches, you can start the CLI session at either end of the connection.
- Step 2** If you do not know the line number you are validating, you can view the port and line numbers by entering the **dsppnports** command at the active PXM.

The first three numbers identify the slot, bay, and line. For example, port 10:1.1:3 represents slot 10, bay 1, line 1. The remaining number is the interface number assigned using the **addport** command.

- Step 3** To display all PNNI links on the current switch, enter the **dsppnni-link** command as follows:

```
MGX8850.7.PXM.a > dsppnni-link
```

The **dsppnni-link** command displays a report for each PNNI link on the switch. The following example shows the report for a switch with one PNNI link.

```
MGX8850.7.PXM.a > dsppnni-link
```

```
node index      : 1
Local port id:  16848897          Remote port id:  17438721
Local Phy Port Id: 1:1.1:1
Type. lowestLevelHorizontalLink   Hello state..... twoWayInside
Derive agg.....                  0   Intf index..... 16848897
SVC RCC index.....               0   Hello pkt RX..... 10
                                   Hello pkt TX..... 9

Remote node name.....MGX8850
Remote node id.....56:160:47.00918100000000107b65f33c.00107b65f33c.01
Upnode id.....0:0:00.0000000000000000000000000000.000000000000.00
Upnode ATM addr.....00.000000000000000000000000.000000000000.00
Common peer group id...00:00.00.0000.0000.0000.0000.0000.0000
```

In the **dsppnni-link** command report, make sure there is an entry for the port for which you are verifying communications. The Local Phy Port Id field in this entry displays the port ID in the same format shown in the **dsppnports** command report. The Hello state reported for the port should be **twoWayInside**. The Remote note ID should display the remote node ATM address.

In the example, the report shown is for port 1:1.1:1. The Hello state is **twoWayInside**, and the ATM address of the node at the other end of the link is 47.00918100000000107b65f33c.00107b65f33c.01. This link is ready to support connections between the two switches.



Tip

If the Hello state for the link is **oneWayInside**, that side is trying to communicate. Check the status at the other end. Remember that the configuration at each end of the trunk must be compatible with that on the other end. For example, if ILMI autoconfiguration is configured at one end and not at the other, the Hello state cannot change to **twoWayInside** or **twoWayOutside**.

Verifying End-to-End PNNI Communications

When connections between two nodes travel over multiple trunks, use the following steps to verify that the PNNI communications path is operational.

- Step 1** Establish a CLI session with the active PXM using a username at any access level. When both ends of the communications path are connected to MGX 8850/8830 switches, you can start the CLI session at either end.
- Step 2** To display information on all accessible nodes, enter the **dsppnni-node-list** command as shown:

```
MGX8850.7.PXM.a > dsppnni-node-list
```

```
node #  node id                                     node name
-----
1      56:160:47.00918100000000001a531c2a.00001a531c2a.01 MGX8850
```

```

node #   node id                               node name
-----
      2   56:160:47.00918100000000036b5e2bb2.00036b5e2bb2.01 8850_NY

```

If a switch appears in this list, you have verified communications with the switch.

Step 3 To display additional information on the local switch, enter the **dsppnni-node** command. For example:

```

MGX8850.7.PXM.a > dsppnni-node

node index: 1                node name: MGX8850
Level.....                56   Lowest.....                true
Restricted transit..      off   Complex node.....         off
Branching restricted      on
Admin status.....        up   Operational status..      up
Non-transit for PGL election..  off
Node id.....56:160:47.0091810000000001a531c2a.00001a531c2a.01
ATM address.....47.0091810000000001a531c2a.00001a531c2a.01
Peer group id.....56:47.00.9181.0000.0000.0000.0000.00

```

Step 4 To display additional information on remote switches, enter the **dsppnni-reachable-addr** command as follows:

```

MGX8850.7.PXM.a > dsppnni-reachable-addr network

scope.....                0   Advertising node number    2
Exterior.....            false
ATM addr prefix.....47.0091.8100.0000.0003.6b5e.2bb2/104
Advertising nodeid..56:160:47.00918100000000036b5e2bb2.00036b5e2bb2.01
Node name.....8850_NY

```

The remote node ATM address appears in the Advertising nodeid row. The information before the first colon (56) is the PNNI level, the information between the first and second colons (160) is the ATM address length, and the remainder of the node ID is the ATM address for the remote node.



Tip

If you cannot verify communications with a remote node, try verifying communications across each of the links between the nodes as described in the previous section, “[Verifying PNNI Trunk Communication](#).”

Managing IMA Groups

The “Configuring Inverse Multiplexing over ATM” section in Chapter 3, “Provisioning ATM Services,” describes how to create and configure IMA groups. The sections that follow describe:

- [Displaying a List of IMA Groups](#)
- [Displaying the Configuration for One IMA Group](#)
- [Configuring an IMA Group](#)
- [Configuring an IMA Link](#)
- [Deleting Lines from an IMA Group](#)
- [Deleting an IMA Group](#)
- [Administratively Enabling and Disabling IMA](#)

- [Testing an IMA Link](#)
- [Modifying an IMA Link Test](#)



Note To perform these IMA configuration tasks, you must be in the ATM CLI context

Displaying a List of IMA Groups

To display a list of IMA groups on the current card, enter the **dspimagrps** command in the ATM CLI context as follows:

```
M8830_CH.12.MPSM155 [ATM] .a > dspimagrps
Ima  Min Tx   Rx   Tx   Diff           NE-IMA           FE-IMA  IMA
Grp  Lnks Frm  Frm  Clk  Delay          State           State   Ver
      Len  Len  Mode (ms)
-----
   1   3  128  128  CTC  100           StartUp           StartUp  1.0
```

Displaying the Configuration for One IMA Group

To display the configuration of one IMA group, enter the **dspimagrps <group>** command in the ATM CLI context. Replace **<group>** with the IMA group number you want to display.

The following example shows the information you can display using the **dspimagrps** command:

```
NodeB.6.MPSM155 [ATM] .a > dspimagrps 1
Group Number           : 1
NE IMA Version         : 1.1
Group Symmetry         : Symm  Operation
Tx Min Num Links      : 1
Rx Min Num Links      : 1
NE Tx Clk Mode        : CTC
FE Tx Clk Mode        : CTC
Tx Frame Len (bytes)  : 128
Rx Frame Len (bytes)  : 128
Group GTSM            : Up
NE Group State        : Operational
FE Group State        : Operational
Group Failure Status   : No Failure
Tx Ima ID             : 1
Rx Ima ID             : 22
Max Cell Rate (c/s)   : 7183
Avail Cell Rate (c/s) : 7183
Diff Delay Max (msecs) : 200
Diff Delay Max Observed (msecs) : 0
Accumulated Delay (msecs) : 0
Clear Accumulated Delay Status : Not In Progress
GTSM Up Integ Time (msecs) : 0
```

Type <CR> to continue, Q<CR> to stop:

```
GTSM Dn Integ Time (msecs) : 4000
Num Tx Cfg Links          : 2
Num Rx Cfg Links          : 2
Num Act Tx Links          : 2
Num Act Rx Links          : 2
Least Delay Link          : 1.1:28
Tx Timing Ref Link        : 1.1:28
Rx Timing Ref Link        : 1.1:27
```

```

Group Running Secs           : 276430
Alpha Val                   : 2
Beta Val                    : 2
Gamma Val                   : 1
Tx OAM Label                : 3
Rx OAM Label                : 3
Test Pattern Procedure Status : Disabled
Test Link                   : Unknown
Test Pattern                 : 255
Stuff Cell Indication (frames) : 1
Version Fallback Enabled    : true
Auto-Restart Mode           : disable
Rx IMA ID Expected         : -1
Auto-Restart Sync State     : disable

```

Configuring an IMA Group

To configure IMA group parameters, perform the following steps:

- Step 1** Establish a configuration session with the active card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context:

```
M8830_CH.12.MPSM155[FR].a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

- Step 3** Enter the **cnfimagr** command to change IMA group parameters. To display the current configuration of the group, enter the **dspimagr <group>** command. Replace **<group>** with the number of the IMA group you want to display.

```

M8830_CH.12.MPSM155[FR].a > cnfimagr [-grp group] [-ver <version>] [-txm <minLinks>]
[-txid <txImaId>] [-txfl <txFrameLen>] [-dd <diffDelayMax>] [-uptim groupUpTime] [-dntim
<groupDownTime>] [-vfb <verFallback>] [-mode <autoRestart>] [-rxid <rxImaIdExpected>] [-cm
<txclkMode>]

```

Table 6-33 describes **cnfimagr** command parameters.

Table 6-33 *cnfimagr* Command Parameters

Parameter	Description
-grp	Specifies the IMA group. <ul style="list-style-type: none"> MPSM-T3E3-155 range: 1–42 MPSM-16-T1E1 range: 1–16 <p>Note To see a list of all IMA groups on the current card, enter the dspimagrps command.</p>
-ver	The version number of ATM Forum IMA specification. <ul style="list-style-type: none"> 1 = Version 1.0 2 = Version 1.1

Table 6-33 *cnfmagrp* Command Parameters (continued)

Parameter	Description
-txm	The minimum number of links that must be operational before the IMA group is operational. <ul style="list-style-type: none"> MPSM-T3E3-155 range: 1–16 MPSM-16-T1E1 range: 1–8 For example, if you create an IMA group of 4 links and specify a minimum number of 3 links, then 3 of the 4 specified links must be operational before the IMA group can be used.
-txid	The IMA ID number transmitted in the IMA ID field of the ICP cell, in the range 0–255.
-txfl	The length of transmitted IMA frame in megabytes. For IMA Version 1.0, the <i>txImaFrameLength</i> value is 128. For Version 1.1, the <i>txImaFrameLength</i> value can be 32, 64, 128, or 256.
-dd	The maximum differential delay in milliseconds. <ul style="list-style-type: none"> T1 range: 1–275 ms E1 range: 1–220 ms
-uptim	Group uptime, in the range 0–400000 milliseconds. Default: 10000
-dntim	Group downtime in the range 0–100000 milliseconds. Default: 2500
-vfb	Enables or disables version fallback on the IMA group. <ul style="list-style-type: none"> 1 = Enable version fallback 2 = Disable version fallback Note Before you enable version fallback for individual IMA groups, you must enable version fallback on the card level. See cnfimaparms -fallback .
-mode	Configures IMA auto restart functionality for the current group. <ul style="list-style-type: none"> 1 = Disable IMA autorestart 2 = Relearn IMA autorestart 3 = Resume a previous IMA autorestart Note Before you enable autorestart for individual IMA groups, you must enable autorestart on the card level. See cnfimaparms -restart .
-rxid	Identifies the expected received IMA ID, either –1 or in the range 1–255.
-cm	Sets the transmit clock mode. Note Applies to MPSM-16-T1E1 only.

In the following example, the user modifies the IMA group uptime and IMA group downtime, and enables version fallback for IMA group 1.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfimagrps -grp 1 -uptim 10000 -dntim 100 -vfb 1
```

- Step 4** To verify IMA group configuration changes, enter a **dspimagrps <group>** command for the appropriate IMA group. Replace *<group>* with the number of the IMA group you modified.

In the following example, the user verifies the changes made to IMA group 1.

```
M8850_NY.13.MPSM155[ATM] .a > dspimagrp 1
  Group Number                : 1
  NE IMA Version               : 1.1
  Group Symmetry               : Symm  Operation
  Tx Min Num Links            : 1
  Rx Min Num Links            : 1
  NE Tx Clk Mode               : CTC
  FE Tx Clk Mode               : CTC
  Tx Frame Len (bytes)        : 128
  Rx Frame Len (bytes)        : 128
  Group GTSM                   : Down
  NE Group State               : StartUp
  FE Group State               : StartUp
  Group Failure Status         : StartUp NE
  Tx Ima ID                    : 100
  Rx Ima ID                    : 0
  Max Cell Rate (c/s)         : 0
  Avail Cell Rate (c/s)       : 0
  Diff Delay Max (msecs)      : 150
  Diff Delay Max Observed (msecs) : 0
  Accumulated Delay (msecs)   : 0
  Clear Accumulated Delay Status : Not In Progress
  GTSM Up Integ Time (msecs)  : 10000
```

Type <CR> to continue, Q<CR> to stop:

```
  GTSM Dn Integ Time (msecs)   : 100
  Num Tx Cfg Links             : 0
  Num Rx Cfg Links             : 0
  Num Act Tx Links             : 0
  Num Act Rx Links             : 0
  Least Delay Link             : Unknown
  Tx Timing Ref Link           : Unknown
  Rx Timing Ref Link           : Unknown
  Group Running Secs           : 0
  Alpha Val                    : 2
  Beta Val                     : 2
  Gamma Val                    : 1
  Tx OAM Label                 : 3
  Rx OAM Label                 : 0
  Test Pattern Procedure Status : Disabled
  Test Link                     : Unknown
  Test Pattern                  : 255
  Stuff Cell Indication (frames) : 1
  Version Fallback Enabled      : true
  Auto-Restart Mode             : disable
  Rx IMA ID Expected           : -1
  Auto-Restart Sync State      : disable
```

Configuring an IMA Link

To configure IMA link parameters, perform the following steps:

- Step 1** Establish a configuration session with the active card.
- Step 2** If you are in the Frame Relay CLI context, enter the **setctx atm** command to change to the ATM CLI context, as shown in the following example:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > setctx atm
```



Note The current service context appears within brackets next to the switch name in the switch prompt.

Step 3 To modify the configuration of an IMA link, enter the **cnfimalnk** command in the ATM CLI context as follows. To display all IMA links and the groups to which they belong, enter the **dspimalnks** command.

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > cnfimalnk -lnk <line/pathId>, -uplif <lifUpTime>,
-dnlif <lifDnTime>, -uplods <lodsUpTime>, -dnlods <lodsDnTime>
```

Table 6-34 describes **cnfimalnk** command parameters.

Table 6-34 Parameters for cnfimalnk Command

Parameter	Description
-lnk	<p>The link (line or path) in the IMA group to configure:</p> <ul style="list-style-type: none"> Physical line: <i>bay.line[:ds1]</i> DS3 payload: <i>bay.line.sts:ds1</i> VT payload: <i>bay.line.sts:vtg.vt</i> VT structured: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i> = 1, <i>line</i> = 1–3, <i>sts</i> = 0–3, <i>ds1</i> = 1–28, <i>tug3</i> = 1–3, <i>vtg</i> = 1–7, <i>vt</i> = 1–4 (VT15) or 1–3 (VT2)</p> <p>Note The MPSM-16T1E1 requires all links in an IMA Group be within lines 1–8 or 9–16. For example, an IMA Group with lines 7, 8, and 9 is not valid.</p> <p>Note To view a list of all line or path numbers on the current card, enter the dsplns or dsppaths command.</p>
-uplif	LIF integration uptime, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.
-dnlif	LIF integration downtime, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.
-uplods	LODS integration uptime, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.
-dnlods	LODS integration downtime, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.

In the following example, the user modifies the IMA link 1.2:2 so that it has a link LIF uptime of 20000, a Link LIF downtime of 10000, a Link LODS uptime of 2500, and a link LODS integrated downtime of 10000:

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > cnfimalnk -lnk 1.5 -uplif 20000 -dnlif 10000 -uplods 2500
-dnlods 10000
```

Deleting Lines from an IMA Group

To delete a line from an IMA group, enter the **delimalnk** *<link>* command in the ATM CLI context as follows. Replace *<link>* with the number of the IMA link you plan to delete.



Note

Deleting a line from an IMA group reduces the available throughput for the group and may have an impact on ATM traffic through the group. Also, the switch does not allow you to delete lines when the resulting number of lines equals less than the minimum number of lines specified for group operation. To change the minimum number of lines for an IMA group, use the **cnfimagrps** command.

In the following example, the user deletes the IMA link 1.1:5:

```
NodeB.6.MPSM155 [ATM] .a > delimalnk 1.1:5
```

Deleting an IMA Group

To delete an IMA group, perform the following procedure in the ATM CLI context.

-
- Step 1** Delete all connections that are associated with the IMA group (**dspscons** and **delcon** commands).
 - Step 2** Delete all ports that are associated with the IMA group (**dsports** and **delport** commands).
 - Step 3** Delete all links that are associated with the IMA group (**dspsimalnks** and **delimalnk** commands).
 - Step 4** Enter the **delimagrp** *<group>* command to delete the IMA group. Replace *group* with the number of the IMA group you want to delete, in the range from 1 through 16. To display existing group numbers, enter the **dspsimagrps** command.

The following example shows how to use the **delimagrp** command:

```
NodeB.6.MPSM155 [ATM] .a > delimagrp 12
```

- Step 5** Enter the **dspsimagrps** command to verify that the appropriate IMA group is deleted.
-

Administratively Enabling and Disabling IMA

You can administratively enable or disable an IMA group. You typically disable an IMA group to change the configuration or perform other maintenance.

Disabling IMA

To disable an IMA group, enter the **dnimagrp** *<group>* command in the ATM CLI context. Replace *<group>* with the number of the IMA group you want to disable.



Note

When an IMA group is disabled, no user traffic can flow through that IMA group.

In the following example, the user disables the IMA group 11.

```
mipsm_node.5.MPSM155 [ATM] .a > dnimagrp 11
Warning: Traffic loss will result on all connections on this IMA group.
```

```
Do you want to proceed (Yes/No) ? y
```

Enabling IMA

To enable an IMA group, enter the **upimagrp** *<group>* command. Replace *<group>* with the number of the IMA group you want to enable.

In the following example, the user enables the IMA group 11.

```
mpsm_node.5.MPSM155 [ATM] .a > upimagrp 11
```



Note

When an IMA group is enabled, that IMA group is ready to carry ATM traffic.

Testing an IMA Link

You can check the validity of an IMA connection by sending a test pattern to the link. If the test pattern is the same when it arrives at the receive endpoint of the link, then the link is valid. If the test pattern is different or does not arrive, then the link is invalid. You can run only one test at a time.

To perform a connectivity test on an IMA link, perform the following steps in the ATM CLI context:

-
- Step 1** Establish a configuration session with the appropriate card using a username with Group1 privileges or higher.
 - Step 2** To start an IMA test on an IMA link, enter the **startimalnktst** command as follows. To display all existing IMA links and the groups to which they belong, enter the **dsimalnks** command.

```
startimalnktst <group> <link> <testPat>
```

Replace *<group>* with the number of the IMA group that owns the link you want to test. Replace *<link>* with the number of the IMA link or path you want to test. Replace *<testPat>* with the number of the transmit test pattern, in the range 0–254.



Note If no value is entered, -1 is the default, which causes the program to select a pattern.

In the following example, the users starts an IMA link test on IMA group 1, link 1.1.1:1.1, using test pattern 1:

```
M8830_CH.4.MPSM155 [ATM] .a > startimalnktst 1 1.1.1:1.1 -pat 1
```

- Step 3** To stop a IMA link test launched using the **startimalnktst** command, enter the **stopimalnktst** *<group>* command. Replace *<group>* with the number of the IMA group that owns the link that is being tested.

In the following example, the user stops an IMA link test that is running on IMA group 1:

```
NodeB.5.MPSM155 [ATM] .a > stopimalnktst 1
```

Modifying an IMA Link Test

To modify an IMA test link or IMA test pattern after the test is started, enter the **cnfimalnktst** command as follows:

```
NodeB.6.MPSM155 [ATM] .a > cnfimalnktst -grp <group> -lnk <link> -pat <testPat>
```

Replace *<group>* with the number of the IMA group that owns the link whose test you want to modify. Replace *<link>* with the number of the IMA link or path whose test you want to modify. Replace *<testPat>* with the number of the transmit test pattern you want to modify, in the range 0–254.

In the following example, the user modifies the link test pattern on IMA group 1, link 1.2:2, to be 200.

```
NodeB.6.MPSM155 [ATM] .a > cnfimalnktst -grp 1 -lnk 1.2:2 -pat 200
```

Performing Loopback Tests

The MPSM-T3E3-155 and MPSM-16-T1E1 cards support line and channel loopbacks.

Line loopbacks can be enabled by:

- Manually placing the line in loopback mode using CLI commands
- Enabling loopback code detection using CLI commands

Channel loopbacks are enabled through use of the following CLI commands on the cards:

- **addlnloop**—Add local or remote loopback
- **dellnloop**—Delete local or remote loopback

For more information on the use of these commands, see [Chapter 7, “Command Reference.”](#)

Performing Bit Error Rate Tests

Bit Error Rate Testing (BERT) is used to determine the health of a full Frame Relay T1 or E1 line, or can be run on a fractional T1 or E1 line, such as one DS0 or group of DS0s. Tests are categorized into three broad areas: BERT pattern tests, Loopbacks, and Monitoring functions.

Bit Error Rate Testing involves sending a pseudo-random, a repetitive, or a user-specified pattern on a physical line. The loopbacked pattern received by the local end is compared with the original test pattern. The quality of a physical interface/line is determined by the number of bit errors discovered in the received patterns. When determining the bit error rate, the following formula is used: Bit Error Rate = Bits received in error/Bits sent.

BERT operations are data intrusive and regular, user traffic cannot flow on the line/port being tested while the operation is in progress. A BERT session requires the tested path to be in loopback mode. The line/port is put into an alarmed state at the start of the operation and restored to a normal state when the operation is terminated.

BERT should not affect performance, because it is a diagnostic feature. However, this is a destructive/intrusive feature in that it puts the line or port being tested out of service. As a result, all channels that exist on the line/port being tested will go into the alarmed state. This may result in a flood of traps or other kinds of traffic (such as AIS) reporting the channel alarms. This might negatively impact the performance of other functions.

A typical sequence in performing Bit Error Rate Testing consists of the following steps:

1. Place the far end interface on the attached end-user equipment in loopback mode if it does not support loopback code detection.
2. Configure BERT. The user can configure the following parameters:
 - Type of loopback (The loopbacks configured are enabled when the BERT is started and deleted when the BERT is stopped)
 - Pattern to transmit
 - Error rate insertion
3. Start BERT—Start the Bit Error Rate Test on the specified interface. Generate the test pattern and detect the incoming pattern. Compare the two patterns and update the counters.
4. Display BERT results— Display the bit error count and the bit error rate.
5. Stop BERT—Stop generating the test pattern and the Bit Error Rate test.

The following topics describe how to manage Bit Error Rate Tests using the onboard BERT functionality:

- [Onboard BERT Features](#)
- [Managing a BERT Session](#)

Onboard BERT Features

Onboard BERT features include:

- The onboard BERT session is initiated from the MPSM-T3E3-155 or MPSM-16-T1E1 card.
- Only one BERT session per line is supported.
- On the MPSM-T3E3-155, a total of 6 concurrent BERT sessions on T1 paths is supported. BERT sessions are not supported on NxDS0 or E1 paths.
- On the MPSM-16-T1E1, a total of 16 concurrent BERT sessions on NxDS0 and T1/E1 interfaces is supported.
- The BERT CLI commands are not service dependent.
- The Cisco BERT MIB is supported.
- Line inband loopback codes are supported.
- Remote loopbacks on ports are not supported.
- Sending loopback codes on ports is not supported.
- Port BERT session on 56K ports is not supported.
- BERT sessions can be run only on active MPSM-T3E3-155 or MPSM-16-T1E1 cards.
- The tests patterns supported by the BERT generator/detector are compliant with CCITT/ITU O.150, O.151, O.152, O.153, and O.161 standards.

[Table 6-35](#) describes the onboard BERT commands supported by the MPSM-T3E3-155 and MPSM-16-T1E1 cards. For more information on the use of these commands, see [Chapter 7, “Command Reference.”](#)

Table 6-35 Onboard BERT Commands

Command	Enter this command to...
addbert	Add a Bit Error Rate Test to a line, path, or port.
cnfbert	Configure a Bit Error Rate Test on a line, path, or port.
startbert	Begin the Bit Error Rate Test configured on the specified line, path, or port.
dspbert	View the BERT parameters configured using the cnfbert command and to view the status of the current BERT session.
dspbertstat	View statistics for a Bit Error Rate Test. Use this command to view changing statistics while the Bit Error Rate Test is running or to view the total statistics accumulated during the test period (after testing has stopped).
insbiterror	Use this command to insert single bit errors into the transmitted BERT pattern configured on the specified path.
stopbert	Enter this command to stop the Bit Error Rate Test running on the specified line, path, or port.
delbert	Enter this command to remove a Bit Error Rate Testing configuration from a line, path, or port. Use this command to delete a BERT session that is running or after the BERT session stops.

Managing a BERT Session

The following restrictions apply to bert tests:

- The MPSM-T3E3-155 supports a total of 6 concurrent BERT sessions on T1 paths only; BERT sessions on NxDS0 or E1 paths are not supported.
- The MPSM-16-T1E1 supports a total of 16 concurrent BERT sessions on NxDS0 and T1 or E1 lines.

To manage a Bit Error Rate Test using the MPSM-T3E3-155 or MPSM-16-T1E1 onboard BERT feature, perform the following procedure:

- Step 1** If the far end interface on the attached end-user equipment does not support loopback code detection, log into the attached end-user equipment and place the line under test into loopback mode.
- Step 2** Establish a configuration session with the MPSM using a username with Group1 privileges or higher.
- Step 3** To add a BERT session to a specific line, path, or port, enter the **addbert** command as follows:

```
M8830_CH.12.MPSM155[FR].a > addbert <bertIfNum>
```

Replace *<bertIfNum>* with the number of the line, path, or port to which you want to add a BERT session.



Note To see all DS1 (T1) path numbers on the current card on the MPSM-T3E3-155, enter the **dsppaths -ds1** command. On the MPSM-16-T1E1 card, enter the **dsplns** or the **dspports** command to see all of the lines and ports on the current card.

- Step 4** To configure a BERT session, enter the **cnfbert** command as follows:

```
M8830_CH.12.MPSM155[FR].a > cnfbert <bertIfNum> [-tp <test pattern>]
[-tpi <transmit pattern inverse>] [-rpi <receive pattern inverse>]
[-eir <error insertion rate>] [-lpbk <loopbackCode>]
```


Table 6-36 lists and describes the parameters for the **cnfbert** command on the MPSM-T3E3-155 and MPSM-16-T1E1 cards.

Table 6-36 *cnfbert* Command Parameters

Parameter	Description
<i>ifNumber</i>	Specifies the line, path, or port number to test. When you enter the cnfbert command with only the interface number specified with no other options selected, the Bit Error Rate Test is configured using the defaults: test pattern all zeros, no loopback, and no error insertion rate.
-tp	Specifies the BERT test pattern to configure, in the range 1–38. For a description of all the available BERT test patterns on the MPSM-T3E3-155 and MPSM-16-T1E1 cards, see Table 7-13 (under the cnfbert command description) in Chapter 7, “Command Reference.” Note You can also enter the dspbertcap CLI to see the supported Loopback codes and their associated numbers for the line.
-tpi	Controls inversion of the transmit BERT pattern: 1 = Not inverted 2 = Inverted
-rpi	Controls inversion of the received BERT pattern: 1 = Not inverted 2 = Inverted
-eir	Inserts bit errors in the transmitted pattern at the following rates: 1 = noError(1): no errors 2 = oneInTen: 1 bit error per 10 bits 3 = oneInHundred: 1 bit error per 100 bits 4 = oneInThousand: 1 bit error per 1000 bits 5 = oneIn10Thousand: 1 bit error per 10,000 bits 6 = oneInHundredThousand: 1 bit error per 100,000 bits 7 = oneInMillion: 1 bit error per 1,000,000 bits 8 = oneInTenMillion: 1 bit error per 10,000,000 bits
-lpbk	Loopback code number, in the range from 1 through 18. Note To see the supported Loopback codes and their associated numbers for the line, enter the dspbertcap CLI.

The following example configures the Bit Error Rate Test pattern 25 on the path 1.1:1. In this example, the use configures the transmit BERT pattern to be inverted.

```
M8830_CH.12.MPSM155[FR].a > cnfbert 1.1:1 -tp 25 -tpi 2
```

Step 5 To view the BERT parameters configured using the **cnfbert** command, enter the **dspbert** command:

```
M8830_CH.12.MPSM155[FR].a > dspbert <bertIfNumber>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session.

The following example shows the BERT parameters configured in the previous step:

```
M8830_CH.12.MPSM155[FR].a > dspbert 1.1:1
```

```

BertIfNum       : 1.1:1
BERT Admin Status : Down
Operational Status : OutOfSync
BERT Pattern    : TwoE20MinusOneQRSS
Error Insertion Rate: NoError
Tx Pattern Invert : Inverted
Rx Pattern Invert : NotInverted
Loopback Code   : noLoopbackCode
Start Date      :

```

Step 6 To start a Bit Error Rate Test, enter the **startbert** command as follows:

```
M8830_CH.12.MPSM155[FR].a > startbert <bertIfNumber>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session. The following example starts a BERT session on the path 1.1:1:

```
M8830_CH.12.MPSM155[FR].a > startbert 1.1:1
```

Step 7 To verify the start of the Bit Error Rate Test, enter the **dspbert** command:

```

M8830_CH.12.MPSM155[FR].a > dspbert 1.1:1
BertIfNum       : 1.1:1
BERT Admin Status : Up
Operational Status : OutOfSync
BERT Pattern    : TwoE20MinusOneQRSS
Error Insertion Rate: NoError
Tx Pattern Invert : Inverted
Rx Pattern Invert : NotInverted
Loopback Code   : noLoopbackCode
Start Date      : Apr 02 2004 00:27:11

```

In this example, an operational status of In Sync indicates that the test is successfully started.

Step 8 To view statistics from a Bit Error Rate Test in progress, enter the **dspbertstat** command as follows:

```
M8830_CH.12.MPSM155[FR].a > dspbertstat <bertIfNumber>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session. The following example displays statistics from a BERT session in progress:

```

M8830_CH.12.MPSM155[FR].a > dspbertstat 1.1:1
  Bert      Bits      Bit Errors      Single Bit
  IfNum     Received   Received       Errors Injected
  -----
    1.1:1      2880         820              0

```

To view the total statistics gathered during a BERT session after the test stops, also use the **dspbertstat** command.

Step 9 To insert one bit errors into an active BERT session, enter the **insbitererror** command as follows:

```
M8830_CH.12.MPSM155[FR].a > insbitererror <path_num>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session. The following example inserts one bit error into the BERT session in progress:

```
M8830_CH.12.MPSM155[FR].a > insbitererror 1.1:1
```

Step 10 To stop a BERT session, enter the **stopbert** command:

```
M8830_CH.12.MPSM155[FR].a > stopbert <bertIfNumber>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session. The following example shows how to stop the current BERT session:

```
M8830_CH.12.MPSM155 [FR] .a > stopbert 1.1:1
```

After a BERT session stops, it may be restarted by using the **startbert** command.

Step 11 To clear a BERT configuration, enter the **delbert** command as follows:

```
M8830_CH.12.MPSM155 [FR] .a > delbert <bertIfNumber>
```

Replace the *bertIfNumber* parameter with the line, path, or port number configured for the BERT session. The following example shows how to clear a current BERT session configuration:

```
M8830_CH.12.MPSM155 [FR] .a > delbert 1.1:1
```

To modify the configuration parameters of a BERT session, you must first clear the current BERT configuration with the **delbert** command and then reconfigure the new parameters using the **cnfbert** command.

Managing MPSM Core Dumps

The following topics describe managing MPSM core dumps:

- [Overview of MPSM Core Dumps](#)
- [Managing Core Dump Files](#)
- [Aborting Core Dumps](#)
- [Displaying Core Command Options](#)
- [Displaying Core Dump Settings](#)
- [Displaying the Core Dump Mask](#)
- [Configuring Core Dump Settings](#)
- [Hot-Dumping the Core](#)

Overview of MPSM Core Dumps

The **core** command is used to manage core memory dumps on the MPSM-T3E3-155 and MPSM-16-T1E1 cards. This command is supported on PXM1E and PXM45 platforms.

Core dumps are used to debug hardware and software errors. Certain software errors such as memory corruption, memory leaks, and resource leaks are difficult to catch during product testing. Other types of errors may manifest only after prolonged use in a production network. When such errors occur, it is imperative to capture the software image in memory and the hardware configurations so that troubleshooting can be performed.

Core memory dumps are supported on cards that are in redundancy groups, and on non-redundant cards.

When a software or hardware error condition requiring a reset occurs, the card will be reset after writing the reset reason to the NVRAM. The boot code then examines the reset reason. If the reset reason is part of the core dump mask, a core dump to the PXM hard disk is performed by means of the cell bus. This type of core dump is known as a cold-dump. The goal is to capture the dump without affecting the tasks running on the PXM card or other service modules.

**Note**

To support cold-dumps from a non-redundant card, you must set the PXM **core red-policy** command to *enable*.

The cards also support a hot-dump or run-time snapshot of the current Host CPU memory, hardware configuration, and Winpath memory. Only one hot-dump of the core memory can take place at a time on a card.

The PXM processor card allows multiple cold-dumps and hot-dumps of the MPSM core memory from different cards to take place at the same time on the switch.

Managing Core Dump Files

Cold-dump and hot-dump MPSM core dump files are saved in the *C:/* directory on the PXM processor card.

Cold-dump files are saved in the format *core_slotNumber.zip*. New cold-dump files from the same slot overwrite any existing cold-dump files from that same slot.

Hot-dump files are saved in the format *filename.zip* using a user specified filename. Do not use the same filename format used by cold-dump files, otherwise the hot-dump file could be overwritten by a subsequent cold-dump of the core.

Use FTP to transfer the core dump zip files to a work station. Core dump zip files must be sent to Cisco TAC for troubleshooting.

Aborting Core Dumps

To abort both hot-dumps and cold-dumps of the core memory on the card, use the PXM **core abort-dump** *<slot>* command.

Cold-dumps of the MPSM core memory are aborted if any of the following events occur:

- The card is reset during a cold-dump in progress.
- The PXM **switchcc** command is performed on the active PXM card during a cold-dump in progress on the card.
- The cold-dump takes longer than the core dump time-out period in effect on the PXM card.

Hot-dumps of the MPSM core memory are aborted if any of the following events occur:

- The card is reset during a hot-dump in progress.
- The PXM **switchcc** command is performed on the active PXM card during a hot-dump in progress on the card.
- The PXM **switchredcd** command is performed during a hot-dump in progress on the active card in a redundancy group.
- The hot-dump takes longer than the core dump time-out period in effect on the PXM card.

**Note**

To display and set the time-out period for cold and hot dumps of core memory, use the PXM **core time-out** command to view the time-out period in effect on the PXM card and use the PXM **core time-out** *<timeInSecs>* command to change the time-out setting on the PXM card.

Displaying Core Command Options

Enter the **core** command with a question mark to list the optional parameters for the **core** command as shown in the following example:

```
M8830_CH.4.MPSM155[FR].a > core ?

core command syntax:

core                ( show settings and saved images )
core ?             ( print usage information       )
core mask          ( show autodump conditions     )
core mask default  ( set default coredump mask           )
core mask <hex-mask> ( select autodump conditions       )
core enable        ( enable auto coredump               )
core disable       ( disable auto coredump              )

core hot-dump <filename.zip> ( take hot dump and save to file )
```

Displaying Core Dump Settings

To display the current core dump settings on the card, enter the **core** command without any arguments. The following example shows the core dump settings on a card that has automatic core dumping enabled and where the saved core images are located:

```
M8830_CH.4.MPSM155[FR].a > core
Automatic core dumping is enabled for this slot.

Saved core images are on PXM's hard disk (C:/).
```

Displaying the Core Dump Mask

The core dump mask is the sum of the hexadecimal numbers associated with reset reasons that are enabled to trigger a core dump. Most reasons for a card reset can be enabled to trigger a core dump. If the reset reason is on, the associated hexadecimal number is an element of the mask.

To display the current core dump mask and the error conditions for which a core dump is enabled, enter the **core mask** command as shown:

```
M8830_CH.4.MPSM155[FR].a > core mask
Automatic core dumping is enabled for this slot.
The current core mask is 0x262ee.

OFF 00001 not used (can't be turned ON)
ON  00002 DRAM Parity Error
ON  00004 WatchDog Timeout Reset
ON  00008 Resource Overflow
OFF 00010 Clear All Configuration (can't be turned on)
ON  00020 Missing Task
ON  00040 Reset because of PXM Low Voltage
ON  00080 Reset By Event Log Task
OFF 00100 Reset from Shell
ON  00200 Unknown
OFF 00400 Reset from PXM
OFF 00800 Reset System (can't be turned on)
OFF 01000 Switch Core Card
ON  02000 Secondary Cache Error
ON  04000 Software Error Reset
OFF 08000 S/W reset due to upgrade (can't be turned on)
```

```
OFF 10000 Restore All Configuration (can't be turned on)
ON 20000 Device Driver Error
```

In this example, the mask is set to the default mask of 0x262ee. To change the mask, see the “[Changing the Core Dump Mask](#)” section on page 6-100.

A reason that cannot trigger a core dump is indicated in the preceding example—*can't be turned on*. A reset reason that *can't be turned on* removes debugging information from memory and therefore is excluded from being part of the mask.

Configuring Core Dump Settings

The following topics describe the configuration of core dump settings:

- [Enabling Automatic Core Dumping](#)
- [Disabling Automatic Core Dumping](#)
- [Changing the Core Dump Mask](#)
- [Restoring the Default Core Dump Mask](#)

Enabling Automatic Core Dumping

To enable automatic core dumping, enter the **core enable** command:

```
M8830_CH.4.MPSM155 [FR] .a > core enable
Automatic core dumping is enabled for this slot.
```

Disabling Automatic Core Dumping

You may want to disable automatic core dumps for the card due to the time it takes to write core memory to the PXM hard drive. For example:

- You may have isolated a problem and want to save the time required to write RAM contents to disk.
- The traffic on the card may be of such high priority that you do not want to dump core memory to disk.
- The card is a non-redundant service module and the dump time may be a concern.



Note The PXM **core red-policy** [*<enable|disable>*] command is used to enable or disable core dumps on non-redundant cards. Setting the **core red-policy** command to *disable* does not disable hot-dumps of the core memory.

To disable automatic core dumping, enter the **core disable** command:

```
M8830_CH.4.MPSM155 [FR] .a > core disable
Automatic core dumping is ** disabled ** for this slot.
```

The use of this command is similar to setting the mask to 0x0.

Changing the Core Dump Mask

To change the core dump mask, enter the **core mask** command as follows:

```
M8830_CH.4.MPSM155 [FR] .a > core mask <hex-mask>
```

Replace the *<hex-mask>* parameter with the sum of all the hexadecimal values for the reset reasons that you want to have in the new core dump mask.

In the following example, the default core dump mask of 0x262ee is changed to 0x263ae:

```
M8830_CH.4.MPSM155[FR].a > core mask 263ae
Automatic core dumping is enabled for this slot.
The current core mask is 0x263ae.

OFF 00001 not used (can't be turned ON)
ON 00002 DRAM Parity Error
ON 00004 WatchDog Timeout Reset
ON 00008 Resource Overflow
OFF 00010 Clear All Configuration (can't be turned ON)
ON 00020 Missing Task
OFF 00040 Reset because of PXM Low Voltage
ON 00080 Reset By Event Log Task
ON 00100 Reset from Shell
ON 00200 Unknown
OFF 00400 Reset from PXM
OFF 00800 Reset System (can't be turned ON)
OFF 01000 Switch Core Card
ON 02000 Secondary Cache Error
ON 04000 Software Error Reset
OFF 08000 S/W reset due to upgrade (can't be turned ON)
OFF 10000 Restore All Configuration (can't be turned ON)
ON 20000 Device Driver Error
```



Note

When automatic core dumping is disabled, changing the mask does not have any effect until the core dump feature is enabled using the **core enable** command.

Restoring the Default Core Dump Mask

To restore the default core dump mask, enter the **core mask default** command as shown:

```
M8830_CH.4.MPSM155[FR].a > core mask default
Automatic core dumping is enabled for this slot.
The current core mask is 0x262ee.

OFF 00001 not used (can't be turned ON)
ON 00002 DRAM Parity Error
ON 00004 WatchDog Timeout Reset
ON 00008 Resource Overflow
OFF 00010 Clear All Configuration (can't be turned ON)
ON 00020 Missing Task
ON 00040 Reset because of PXM Low Voltage
ON 00080 Reset By Event Log Task
OFF 00100 Reset from Shell
ON 00200 Unknown
OFF 00400 Reset from PXM
OFF 00800 Reset System (can't be turned ON)
OFF 01000 Switch Core Card
ON 02000 Secondary Cache Error
ON 04000 Software Error Reset
OFF 08000 S/W reset due to upgrade (can't be turned ON)
OFF 10000 Restore All Configuration (can't be turned ON)
ON 20000 Device Driver Error
```

If you add all of the reset reasons that are 'on' in the default mask, the sum is the hexadecimal number 0x262ee.

Hot-Dumping the Core

A hot-dump of the core directs the boot code to save memory but not to reset the card. Because the memory-read during a hot-dump occurs while other tasks are running and modifying the memory, data structures may not be accurate or consistent in a hot-dump. The hot-dump is the only memory dump during which traffic continues to flow. Only one hot-dump of the core memory can take place at a time on a card.

To initiate a hot-dump of the core, enter the **core hot-dump** command as follows:

```
M8830_CH.4.MPSM155 [FR] .a > core hot-dump <filename.zip>
```

Replace the *<filename.zip>* parameter with a user specified filename with the *.zip* file extension. Specify a filename not already in use with each hot-dump performed, otherwise the **core hot-dump** command fails.



Note

When specifying the filename for a hot-dump of the core, do not use the same filename format as used by cold-dump files. This could cause the hot-dump file to be overwritten by a subsequent cold-dump of the core.

In the following example, a hot-dump of the core is initiated and saved to a user-specified file with the name of *dump28.zip*:

```
M8830_CH.4.MPSM155 [FR] .a > core hot-dump dump28.zip
Do you want to proceed (Yes/No)? y
Collecting WinCore
Finished collecting WinCore

Creating dump28.zip
.....
.....
Done.
```



Note

To abort a hot-dump and cold-dump of the core memory on the card, use the PXM **core abort-dump** *<slot>* command.



Command Reference

This chapter provides descriptions of the commands that are available on the MPSM-T3E3-155 and MPSM-16-T1E1 CLI. The commands are in alphabetical order. The descriptions include the following information about the commands:

- The name of the command as it is entered in the CLI.
- The full English name of the command and the cards on which it is available.
- A description of the function of the command.
- The syntax of the command.
- The syntax description of the parameters.
- The related commands that can be used in conjunction with the command.
- The attributes of the command:
 - log: indicates whether the command is logged in a file or not.
 - state: indicates the state which the card must be in to execute the command.
 - privilege: indicates the privilege level that the user must have to execute the command.
- An example of using the command in the CLI, including the output displayed and any messages that are returned.

Command Summary

The commands in the tables that follow ([Table 7-1](#) to [Table 7-11](#)) are divided by major functional group. Each table shows the complete name of the command and the service module cards for which the command is valid.

Session Management Commands

Table 7-1 Session Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
?	X	X	X	X	X
bootchange	X	X	X	X	X

Table 7-1 Session Management Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
bye	X	X	X	X	X
clrscrn	X	X	X	X	X
delsesn	X	X	X	X	X
exit	X	X	X	X	X
help	X	X	X	X	X
history	X	X	X	X	X
logout	X	X	X	X	X
sesntimeout	X	X	X	X	X
smclrscrn	X	X	X	X	X
timeout	X	X	X	X	X
users	X	X	X	X	X
who	X	X	X	X	X
whoami	X	X	X	X	X

Card Management Commands

Table 7-2 Card Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
cc	X	X	X	X	X
ccc	X	X	X	X	X
cnfdset	X	X	X	X	X
cnfclctx	X	X	X	X	
cnfprfparam	X	X	X	X	X
cnfrmsrc	X	X	X	X	X
core	X	X	X	X	X
dspapsbkplane	X	X			
dspcd	X	X	X	X	X
dspcdset	X	X	X	X	X
dspcdstatcnf	X	X	X	X	X
dspcduptime	X	X	X	X	X
dspclctx	X	X	X	X	X
dspeng	X	X	X	X	X
dspfile	X	X	X	X	X

Table 7-2 Card Management Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
dsplccd	X	X	X	X	X
dspprf	X	X	X	X	X
dspprfhist	X	X	X	X	X
dsprmalms	X	X	X	X	X
dsprminfo	X	X	X	X	X
dsprmrsrc	X	X	X	X	X
dsprmrsrcs	X	X	X	X	X
dspsct	X	X	X	X	X
dsptotals	X	X	X	X	X
dspversion	X	X	X	X	X
memshow	X	X	X	X	X
movelic	X	X	X	X	X
setctx	X	X	X	X	
seteng	X	X	X	X	X
sfmDBShow	X	X	X	X	X
shellConn	X	X	X	X	X
trace	X	X	X	X	X

Line Management Commands

Table 7-3 Line Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addapsln	X	X			
addlnloop	X	X	X	X	X
clradjlnalment	X	X			
clrbecnt	X	X			
clrlalment	X	X	X	X	X
cnfapsln	X	X			
cnfautolndiag	X	X	X	X	X
cnfcdmode	X	X	X	X	X
cnfln	X	X	X	X	X
cnflnalm	X	X			
delapsln	X	X			

Table 7-3 Line Management Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
dellnloop	X	X	X	X	X
dnl	X	X	X	X	X
dspadjlnalm	X	X			
dspadjlnalment	X	X			
dspapsln	X	X			
dspapslns	X	X			
dspatmlayer	X		X		
dspatmlayerent	X		X		
dspautoIndiag	X	X	X	X	X
dspbecnt	X	X			
dspdiagresults	X	X	X	X	X
dspln	X	X	X	X	X
dsplnalm	X	X	X	X	X
dsplnalmentf	X	X			
dsplnalment	X	X	X	X	X
dsplnalms	X	X	X	X	X
dsplnload	X		X		
dsplnpmbucketent	X	X	X	X	X
dsplns	X	X	X	X	X
dspset	X	X	X	X	X
dsptotals	X	X	X	X	X
switchapsln	X	X			
upln	X	X	X	X	X

Port Management Commands

Table 7-4 Port Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addport	X	X	X	X	
clrilmi	X		X		
clrportent	X	X	X	X	
clrportents		X		X	
cnffrparms		X		X	

Table 7-4 Port Management Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
cnfilmi	X		X		
cnfport	X	X	X	X	
delpport	X	X	X	X	
dnallports	X		X		
dnilmi	X		X		
dnport	X	X	X	X	
dspfrparms		X		X	X
dspilmi	X		X		
dspilmicnt	X		X		
dspilmis	X		X		
dspport	X	X	X	X	X
dspportent	X	X	X	X	
dspportload	X		X		
dspports	X	X	X	X	X
dspportset	X	X	X	X	X
dspset	X	X	X	X	X
dsptotals	X	X	X	X	X
upilmi	X		X		
upport	X	X	X	X	
upallports	X		X		

Path Management Commands

Table 7-5 Path Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
clrpathalmcnt	X	X			
cnfatmlayer	X				
cnfpath	X	X			
cnfpathalm	X	X			
cnftug3	X	X			
dnpath	X	X			
dspatmlayer	X		X		
dspatmlayerent	X		X		

Table 7-5 Path Management Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
dsppath	X	X			
dsppathalm	X	X			
dsppathalmcnf	X	X			
dsppathalmcnt	X	X			
dsppathalms	X	X			
dsppaths	X	X			
dsptotals	X	X	X	X	X
dsptug3cnf	X	X			
dsptug3s	X	X			
uppath	X	X			

Line, Port, and Path Bert Commands

Table 7-6 BERT Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addbert	X	X	X	X	X
cnfbert	X	X	X	X	X
delbert	X	X	X	X	X
dspberrt	X	X	X	X	X
dspberrtcap	X	X	X	X	X
dspberrts	X	X	X	X	X
dspberrtstat	X	X	X	X	X
insbiterror	X	X	X	X	X

IMA Group Commands

Table 7-7 IMA Group Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addimagrp	X		X		
addimalnk	X		X		
addimaport	X		X		
clrimadelay	X		X		

Table 7-7 IMA Group Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
clrimagrpalment	X		X		
clrimagrpalments	X		X		
clrimalnkent	X		X		
clrimalnkent	X		X		
clrimalnkents	X		X		
cnfatmlayer	X		X		
cnfautorestart	X		X		
cnfimagr	X		X		
cnfimalnk	X		X		
cnfimalnktst	X		X		
cnfimaparms	X		X		
delimagr	X		X		
delimalnk	X		X		
dnimagr	X		X		
dspatmlayer	X		X		
dspatmlayercnt	X		X		
dspautorestart	X		X		
dspimagr	X		X		
dspimagrpal	X		X		
dspimagrpalment	X		X		
dspimagrpalms	X		X		
dspimagrpbucketent	X		X		
dspimagrps	X		X		
dspimagrps	X		X		
dspimalnk	X		X		
dspimalnkalm	X		X		
dspimalnkalms	X		X		
dspimalnkbucketent	X		X		
dspimalnkent	X		X		
dspimalnks	X		X		
dspimaparms	X		X		
dsptotals	X		X		
restartimagr	X		X		
startimalnktst	X		X		

Table 7-7 IMA Group Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
stopimalnktst	X		X		
upimagrp	X		X		

Multilink Frame Relay Commands

Table 7-8 Multilink Frame Relay Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addmfrbundle		X			
addmfrlnk		X			
addmfrport		X			
clrmfrbundlecnt		X			
clrmfrbundlecnts		X			
clrmfrlnkcnt		X			
clrmfrlnkcnts		X			
cnfmfrbundle		X			
cnfmfrlnk		X			
delmfrbundle		X			
delmfrlnk		X			
dnmfrbundle		X			
dspmfrbundle		X			
dspmfrbundlealm		X			
dspmfrbundlealms		X			
dspmfrbundlebucketent		X			
dspmfrbundlecnt		X			
dspmfrbundles		X			
dspmfrlnk		X			
dspmfrlnkalm		X			
dspmfrlnkalms		X			
dspmfrlnkbucketent		X			
dspmfrlnkcnt		X			
dspmfrlnks		X			

Table 7-8 Multilink Frame Relay Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
dsptotals		X			
upmfrbundle		X			

Multilink PPP Commands

Table 7-9 Multilink PPP Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addmpbundle					X
addppplink					X
addpppmux					X
clrmpbundlecnt					X
clrmpbundlecnts					X
clrppplnkcnt					X
clrpppmuxcnt					X
cnfmpbundle					X
cnfmpbundleparams					X
cnfppplink					X
cnfpppmux					X
delmpbundle					X
delppplink					X
delpppmux					X
dnmpbundle					X
dnppplink					X
dspmpbundle					X
dspmpbundlecnt					X
dspmpbundleload					X
dspmpbundleparams					X
dspmpbundles					X
dspppplink					X
dspppplinks					X
dspppplnkcnt					X
dsppppmux					X
dsppppmuxcnt					X

Table 7-9 Multilink PPP Commands (continued)

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
dsptotals					X
dspwinpathload					X
dspwpbundles					X
upmpbundle					X
uppplink					X

Resource Partition Commands

Table 7-10 Resource Partition Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addpart	X	X	X	X	
addrseprtn	X	X	X	X	
clrilmicnt	X		X		
cnfpart	X	X	X	X	
cnfilmi	X		X		
cnfrseprtn	X	X	X	X	
delpart	X	X	X	X	
delrseprtn	X	X	X	X	
dnilmi	X		X		
dspilmi	X		X		
dspilmicnt	X		X		
dspilmis	X		X		
dspload	X	X	X	X	
dsppart	X	X	X	X	X
dspparts	X	X	X	X	X
dsprseprtn	X	X	X	X	X
dsprseprtns	X	X	X	X	X
dspvsiparts	X	X	X	X	X
upilmi	X		X		

Connection Management Commands

Table 7-11 Connection Management Commands

Command	MPSM-T3E3-155		MPSM-16-T1E1		
	ATM Context	FR Context	ATM Context	Frame Relay Context	PPP Context
addchanloop	X	X	X	X	
addcon	X	X	X	X	X
clrchanent	X	X	X	X	X
clrchanents	X	X	X	X	X
clrsarent	X	X	X	X	X
cnfabr	X		X		
cnfchanstdabr		X		X	
cnfcon	X	X	X	X	X
delchanloop	X	X	X	X	
delcon	X	X	X	X	X
dncon	X	X	X	X	X
dncons	X		X		
dspchanent	X	X	X	X	X
dspchanloop	X	X	X	X	
dspchanstdabr		X		X	
dspchantests	X	X	X	X	X
dspcon	X	X	X	X	X
dspeconalments	X	X	X	X	X
dspeconalms	X	X	X	X	X
dspeconload	X		X		
dspecons	X	X	X	X	X
dspsarent	X	X	X	X	X
dsptotals	X	X	X	X	X
dspsvicon	X	X	X	X	X
dspsvicons	X	X	X	X	X
getperfromcir		X		X	X
rrtcon	X	X	X	X	X
tstcon	X	X	X	X	X
tstconseg	X		X		
tstdelay	X	X	X	X	X
upcon	X	X	X	X	X
upcons	X		X		

Command Line Interface

Each MPSM-T3E3-155 and MPSM-16-T1E1 card has its own command line interface (CLI), which is similar to the CLIs on the PXMs and the other service modules.

The CLI is the interface from which you to enter the commands that configure the card. You log into the CLI using the appropriate user name and password. For detailed information about user names, passwords, and logging into the CLI, see the *Cisco MGX 8800/8900 Series Configuration Guide, Release 5.2*.

After you have logged in, you see a CLI prompt such as the following one:

```
MGX8850.7.PXM.a >
```

To change from the CLI of one card to the CLI of another card, enter the change card (**cc**) command. For example:

```
MGX8850.7.PXM.a > cc 1
(session redirected)
MGX8850.1.MPSM155 [ATM] .a >
```

CLI Prompt

The format of the CLI prompt is as follows:

```
Name.Slot Number.Card Type.Card State >
```

For example:

```
MGX8850.1.MPSM155 [ATM] .a >
```

[Table 7-12](#) describes the format of the CLI prompt:

Table 7-12 CLI Prompt Descriptions

Format	Name	Slot Number	Card Type	Service Context	Card State
Example	MGX8850	1	MPSM155	[ATM]	a
Description	The name of the switch.	The slot containing the front card.	The type of card, such as PXM, MPSM-T3E3-155, MPSM-16-T1E1	The service context currently configured on the card. Can be [ATM] or [FR]. Can be [PPP] on MPSM-16-T1E1.	a—active s—standby i—initialized

CLI Syntax

This section explains the syntax for using commands in the CLI. The following topics are discussed:

- Command Notation
- Command Parameters
- Command Entry

Command Notation

The notations for the CLI syntax are as follows:

- Commands appear in **bold**, for example: **addport**
- Keywords appear in **bold**, for example: **-ds1**
- Literal strings appear in **bold**, for example: **yes**
- Variables appear in *italics*, for example: *bay.line*
- Required parameters appear within arrowheads (< >), for example: <ifNum>
- Optional parameters appear within square brackets ([]), for example: [-**minvpi** *minvpi*]
- A vertical bar (|) represents the logical OR function
- Braces { } enclosing keywords or arguments separated by a vertical bar (|) indicate a required choice.

Command Parameters

Parameters act as the arguments for the command. Parameters may consist of variables, keywords, and literal strings.

Commands may include parameters that are keyword-driven or position-dependent.

Position-dependent Parameters

You must type position-dependent parameters in the order they appear in the syntax description. For example, to add a logical port, you must enter the required, position-dependent parameters as follows:

addport <ifNum> <bay.line> <guaranteedRate> <maxrate> <scID> <ifType> [*vpi*]

Keyword-driven Parameters

For a keyword-driven parameter, the keyword is preceded by a dash and followed by a variable, for example:

[-**timeout** *secs*]

Keyword-driven parameters are usually not position-dependent.

In the following example, the command contains both keyword-driven and position-dependent parameters.

delcons <ifNum> <vpi> <vci> [-**num** *num. conns to del*] [-**verbose** **1** | **0**]

The keyword-driven parameters appear first in a specific order. The keyword-driven parameters can be in any order after that.

Command Entry

You enter a command by pressing the **Return** key or **Enter** key after you have typed the name of the command and all of its parameters in the proper order.

If you enter a command with incorrect parameters or with no parameters (when parameters are required), the CLI displays a message with the correct syntax, parameters, and ranges for the command. The message may also suggest what the problem is.

**Note**

The history buffer stores the last 10 commands you entered. Enter the **Up Arrow key** to recall commands in the history buffer, beginning with the most recent command. Repeat the key sequence to recall older commands successively.

?

? (or Help)

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **?** or **help** command to view all commands you can use on the current card and current privilege level. The display does not show commands with a privilege level that is higher than that of the current user.

If you follow the **?** with part of a command name, the output shows all commands that contain that string. If you follow the **?** with the complete name of one command, the output simply states whether that command is available.

If you can enter two parameter strings, **help** provides information for each of the two strings separately (not a single, two-part string).

Syntax

? [*command*]

Syntax Description

<i>command</i>	Full or partial name of a command.
----------------	------------------------------------

Related Commands**help****Attributes**

Log: no

State: active, standby, init

Privilege: ANYUSER

Example

In the following example, the user displays all commands available on an MPSM-T3E3-155 card in the Frame Relay CLI context:

```
M8850_SF.9.MPSM155 [FR] .a > ?
```

```
Available commands
```

```
-----
```

```
?
```

```
addapsln
```

```
addbert
```

```
addchanloop
```

```
addcon
```

```
addinloop
```

```
addmaster
```

```
addmfrbundle
```

```
addmfrlnk
```

```
addmfrport
```

```
addpart
```

```
addport
addrscprtn
addslave
bootChange
bye
cc
ccc
```

Type <CR> to continue, Q<CR> to stop:

In the following example, the user views all commands associated with a partial command entry string.

```
M8850_SF.9.MPSM155[FR].a > ? con
```

```
Available commands
-----
addcon
cnfcon
delcon
dncon
dspcon
dspconalmcnts
dspconalms
dspcons
dspvsicons
rrtcon
shellConn
tstcon
upcon
```


addapsln

Add APS Line

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **addapsln** command to designate a pair of lines (*workingIndex*, *protectIndex*) as APS lines. To configure the APS parameters, enter the **cnfapsln** command.

APS Overview

Automatic Protection Switching (APS) is a standards-based redundancy scheme which enhances network reliability by protecting against line failure. APS is defined in Bellcore and ITU standards for North American SONET and international Synchronous Digital Hierarchy (SDH) optical network links. The relevant standards are Bellcore GR-253 and ITU-T G.841.

APS enables a pair of SONET lines to be configured for line redundancy. The APS pair consists of a working line (*workingIndex*) and a protection line (*protectIndex*), where one line is active and the other is a backup. Whether or not the backup line passes traffic while in standby mode depends on the APS architecture mode (*archmode*).

Coordination of line switching is controlled by an in-band signaling protocol. If the fiber optic carrier for the active line is severed or damaged, the in-band signaling protocol must detect the fault within 10 milliseconds. After the in-band signaling protocol has detected the fault, it must switch the user traffic to the standby line within 50 milliseconds.

When the *revertive* option is enabled (see **cnfapsln**), the in-band signaling protocol will attempt to switch the user traffic back to the working line from the protection line after the working line becomes functional again. However, it must wait for the configured time period (*wait to restore*) to elapse.

Direction

APS can be configured in two directions (see *direction* parameter in **cnfapsln**), bidirectional and unidirectional. Bidirectional means that both the receiving and transmitting paths are switched. Unidirectional means that only the affected path, receiving or transmitting, is switched.

Same-card APS

In same-card APS, the working bay and protection bay must be the same, and the working line and protection line must be adjacent.

Architecture mode 1:1 is supported only on same-card APS.

Cross-card APS

In cross-card APS, the working slot and the protection slot must be adjacent. The working bay and line number, and the protection bay and line number must be the same. Card redundancy must be configured on the two cards before cross-card APS can be added.

APS Architecture Modes

MPSM-T3E3-155 supports the following APS architecture modes (*archmode*):

- 1 = 1+1—provides line redundancy with traffic on both lines
- 2 = 1:1—provides line redundancy with traffic on the active line only.
- 3 = 1+1—Annex B



Note

The ITU GR.253 and the G.841 AnnexA protocols are supported in modes 1 and 2 on MPSM-T3E3-155.



Note

Other architecture mode options may be displayed by the CLI when the **addapsln** command is entered with no parameters, but they are not supported at this time.

Syntax

```
addapsln <workingIndex> <protectIndex> <archmode>
```

Syntax Description

<i>workingIndex</i>	Indicates the working slot number, bay number, and line number of the working line in the format: <i>slot.bay.line</i> Note On the MPSM-T3E3-155 card, the bay is always 1.
<i>protectIndex</i>	Indicates the protection slot number, bay number, and line number of the protection line in the format: <i>slot.bay.line</i> Note On the MPSM-T3E3-155 card, the bay is always 1.
<i>archmode</i>	Indicates the APS architecture mode to be used on the working/protection line pairs. <ul style="list-style-type: none"> • 1 = 1+1—Provides line redundancy with traffic on both lines • 2 = 1:1—Provides line redundancy with traffic on the active line only. • 3 = 1+1—Annex B

Related Commands

cnfapsln, delapsln, dspapsln, dspapslns, switchapsln, dspapsbkplane, clrbecnt, dspbecnt

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user adds 1+1 APS redundancy to the two lines on the same MPSM-T3E3-155 card:

```
mposm_node.13.MPSM155 [ATM] .a > addapsln 9.1.1 9.1.2 1
```

addbert

Add Bit Error Rate Test

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addbert** command to add a Bit Error Rate Test (BERT) session to a line, path, or port. After you add the BERT session, you can configure the test pattern and the type of loopback using the **cnfbert** command.

Syntax

addbert <bertIfNum>

Syntax Description

<i>bertIfNum</i>	Interface number (line, path, or port number) on which to add a BERT session.
Note	Enter the dsplns , dsppaths or dspports command to display the line, path, or port numbers for the current card.
Note	For the MPSM-T3E3-155, you can add BERT sessions to paths only.
Note	For the MPSM-16-T1E1 in ATM or PPP contexts, you can add BERT sessions to lines only.

Related Commands

cnfbert, **delbert**, **dspbert**, **dspbertcap**, **dspberts**, **dspbertstat**, **startbert**, **stopbert**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user adds a BERT session to the Frame Relay path 1.1.2.

```
M8830_CH.12.MPSM155[FR].a > addbert 1.1.2
```

addchanloop

Add Channel Loopback

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addchanloop** command to place a channel in loopback mode.

Syntax (ATM Service Context)

```
addchanloop <IfNum><vpi><vci> <loopback>
```

Syntax Description (ATM Service Context)

<i>IfNum</i>	Interface number (port number) of the channel to configure. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Enter the dspecons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM channels.</p>
<i>vpi</i>	VPI, in the range 0-4095
<i>vci</i>	VCI, in the range 32-65535
<i>loopback</i>	The desired loopback type: <ul style="list-style-type: none"> • 1=RemoteLoop (Ingress) • 2=LocalLoop (Egress)

Syntax (Frame Relay Service Context)

```
addchanloop <IfNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>IfNum</i>	Interface number (port number) of the channel to configure. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Enter the dspecons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.</p>
<i>dlci</i>	Data-link connection identifier, in the range 1-1022 for a 2-byte header, or 1-8388607 for 4-byte header.

Related Commands

dspechanloop, **delchanloop**, **dspecons**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user activates a local loopback on port 12, VPI 35, VCI 120.

```
M8830_CH.12.MPSM155[ATM].a > addchanloop 12 35 120 2
```

Example (Frame Relay Service Context)

In the following example, the user activates a loopback on port 11, DLCI 150.

```
M8830_CH.12.MPSM155[FR].a > addchanloop 11 150
```

addcon

Add Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addcon** command to add a logical connection, either an SPVC or PVC, between service module ports.

You can create two types of SPVCs:

- Single-ended SPVCs
- Double-ended SPVCs

Single-ended SPVCs are defined at the master endpoint and do not require configuration of a slave endpoint. The primary benefit of single-ended SPVCs is that they are easier to configure. After configuration, the master endpoint configures and brings up the slave endpoint. In order for this feature to work correctly, the destination endpoint must support single-ended SPVCs.

Double-ended SPVCs require separate configuration of the master and slave endpoints. The slave endpoint must be configured first because this step generates a 20 octet NSAP slave address that must be entered during master endpoint configuration.

For detailed information about adding ATM connections on an MPSM-T3E3-155 or MPSM-16-T1E1 card, see the “[Provisioning and Managing SPVCs and SPVPs](#)” section in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)

For detailed information about adding Frame Relay connections on an MPSM-T3E3-155 or MPSM-16-T1E1 card, see the “[Provisioning and Managing SPVCs](#)” section in [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)

Syntax (ATM Service Context)

```

addcon <ifNum> <vpi> <vci> <service type> <mastership>
[-casttype <value>] [-slave <NSAP.vpi.vci>]
[-lpcr <local PCR>] [-rpcr <remote PCR>]
[-lscr <local SCR>] [-rscr <remote SCR>]
[-lmbs <local MBS>] [-rmbs <remote MBS>]
[-lcdv <local maxCDV>] [-rcdv <remote maxCDV>]
[-lctd <local maxCTD>] [-rctd <remote maxCTD>]
[-lmcr <local MCR>] [-rmcr <remote MCR>]
[-cdvt <local CDVT>] [-cc <OAM CC Cnfg>] [-stat <Stats Cnfg>]
[-frame <frame discard>] [-mc <maximum cost>]
[-lputil <local util>] [-rputil <remote util>]
[-slavepersflag <slavepers>]
[-rtngprio <routingPriority>]
[-prefrte <preferredRouteId>]
[-intvsvd <internal VSVD config>] [-extvsvd <external VSVD config>]
[-directrte <directRoute>]

```



Note

To specify an OAM segment endpoint, enter the **cnfcon** command after you have created the connection by using the **addcon** command. The **cnfcon** parameter is **-segep**.



Syntax Description (ATM Service Context)

For the applicable parameters, the “local” end is the point at which you are provisioning the connection.

<i>ifNum</i>	<p>Interface number (port number) of the port to connect.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Enter the dsports command in the ATM CLI context to display the port numbers for all active ATM ports.</p>												
<i>vpi</i>	<p>Specifies the Virtual Path Identifier.</p> <ul style="list-style-type: none"> • VCC UNI range 0-255 • VCC NNI or VNNI range: 0-4095 <p>For a VNNI, specify one VPI per port.</p>												
<i>vci</i>	<p>Specifies the Virtual Connection Identifier (VCI).</p> <ul style="list-style-type: none"> • VCC UNI range: 1-4095 • VCC NNI or VNNI range: 1-65535 • VPC: 0 only 												
<i>service type</i>	<p>Specifies the ATM service type:</p> <ul style="list-style-type: none"> • 1 = CBR1 (Constant Bit Rate 1) • 2 = VBR1RT (Variable Bit Rate 1, Real Time) • 3 = VBR2RT (Variable Bit Rate 2, Real Time) • 4 = VBR3RT (Variable Bit Rate 3, Real Time) • 5 = VBR1NRT (Variable Bit Rate 1, Non-Real Time) • 6 = VBR2NRT (Variable Bit Rate 2, Non-Real Time) • 7 = VBR3NRT (Variable Bit Rate 3, Non-Real Time) • 8 = UBR1 (Unspecified Bit Rate 1) • 9 = UBR2 (Unspecified Bit Rate 2) • 10 = ABRSTD (Standard ABR—see cnfabr for VS/VD-specific parameters) • 11 = CBR2 (Constant Bit Rate 2) • 12 = CBR3 (Constant Bit Rate 3) <p>Note CBR2 and CBR3 will be obsoleted in the future. Use CBR1 instead.</p> <p>Note For ATM-FR interworking, the service mapping is.</p> <table border="0"> <tr> <td>FR</td> <td>ATM</td> </tr> <tr> <td>highpriority</td> <td>cbr1</td> </tr> <tr> <td>rtVBR</td> <td>vbr3rt</td> </tr> <tr> <td>rtVBR</td> <td>vbr3nrt</td> </tr> <tr> <td>uBR</td> <td>ubr</td> </tr> <tr> <td>stdABR</td> <td>stdabr</td> </tr> </table>	FR	ATM	highpriority	cbr1	rtVBR	vbr3rt	rtVBR	vbr3nrt	uBR	ubr	stdABR	stdabr
FR	ATM												
highpriority	cbr1												
rtVBR	vbr3rt												
rtVBR	vbr3nrt												
uBR	ubr												
stdABR	stdabr												

<i>mastership</i>	<p>Defines the endpoint as master or slave:</p> <ul style="list-style-type: none"> • 1 = master • 2 = slave
-casttype	<p>Sets the broadcast type. Only one option is supported:</p> <ul style="list-style-type: none"> • 0 = point-to-point
-slave	<p>Specifies the slave-end connection identifier for the <i>master</i> endpoint. You get the slave-end connection ID at the slave-end node when you add that endpoint. Specify the slave in the following format:</p> <p><i>slave_nsap_address.vpi.vci</i></p> <p>Note This parameter is required when you configure a master endpoint (<i>mastership=1</i>).</p>
-lpcr	<p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-rpcr	<p>Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-lscr	<p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-rscr	<p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-lmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the local to remote direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0-5000000 cells</p>
-rmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0-5000000 cells</p>
-lcdv	<p>Specifies the Local Cell Delay Variation, which limits the peak to peak cell delay variation from the local endpoint to the remote endpoint, in the range 1–16777215 microseconds.</p>
-rcdv	<p>Specifies the Remote Cell Delay Variation, which limits the peak to peak cell delay variation from the remote endpoint to the local endpoint, in the range 1–16777215 microseconds.</p> <p>Default: –1</p>

-lctd	Specifies the Local Cell Transfer Delay (CTD), which limits the CTD from a local endpoint to a remote endpoint, in the ranges 0–65535 microseconds.
-rctd	Specifies the Remote Cell Transfer Delay (CTD), which limits the CTD from the remote endpoint to the local endpoint, in the range 0–65535 microseconds. Default: –1
-lmcr	Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-rmcr	Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-cdvt	Specifies the Local Cell Delay Variation Tolerance (CDVT) from a local endpoint to a remote endpoint, in the range 1–5000000 microseconds. Cell Delay Variation Tolerance controls the time scale over which the PCR is policed. Note No <i>remote</i> CDVT is necessary.
-cc	Enables or disables the Operations, Administration, and Maintenance continuity check (OAM CC): <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p> <p>Note A non-zero AIS delay timer affects CC functionality (if enabled) during the intentional re-routing of a connection following the optrte or cnfrteopt command at the PXM card. The cnfaisdelaytimer command at the PXM card controls the AIS-delay feature. If the delay timer is configured and the connection is groomed, the switch turns off CC until the connection is re-routed.</p>
-stat	Enables or disables connection statistics collection for the Cisco WAN Manager tool: <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Note Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p>
-frame	Enables or disables frame discard for this connection. You can use this option only at the master endpoint of a connection. <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default)

-mc	<p>Specifies the Maximum Cost (<i>maxcost</i>), which creates a priority for the connection route. The switch can select a route if the cost does not exceed this value. If you do not specify <i>maxcost</i>, the connection has the highest routing priority by default. Use this parameter to lower the routing priority of a connection.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Use the <i>optimal</i> (or least expensive) path • 1–4294967295: Use the path if the total cost for all links does not exceed this value. <p>The default value is 4294967295, which assigns the highest priority to an SPVC based on cost. If you do not specify <i>maxcost</i>, the cost appears as a –1 in the output of the dscon command.</p> <p>Note Although <i>maxcost</i> applies to an individual connection, routing costs primarily depend on a cost-per-link that you specify at every PNNI logical port in the network.</p>
-lputil	<p>Specifies the Local Percentage Utilization, in the range 1-100 percent.</p> <p>Default: 100 percent</p>
-rputil	<p>Specifies the Remote Percentage Utilization, in the range 1-100 percent. Default: 100 percent.</p>
-slavepersflag	<p>Controls whether the endpoint is persistent or non-persistent. Enter a number to indicate the persistency as follows:</p> <ul style="list-style-type: none"> • 0 = persistent (default) • 1 = non-persistent
-rtngprio	<p>The routing priority for the connection, in the range 1-15. 0 is reserved for control connections, and 1 is reserved for IP to CWM.</p> <p>Default: 8</p>
-prefrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Enter the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route (default) • 1-65535: The preferred route id
	<p>Note Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Enter the dsicons [-rteid <prefrte id>] command at the PXM card to display all connections associated with a route.</p>
	<p>Note An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p>

-intvsvd	<p>Enables or disables VS/VD on the internal loop:</p> <ul style="list-style-type: none"> • 1 = Off (default) • 2 = On • 3 = Unspecified: Use the VS/VD specification in the SCT file. <p>The cnfintfvsvd command enables VS/VD at the PNNI port level.</p>
-extvsvd	<p>Enables or disables VS/VD on the external loop:</p> <ul style="list-style-type: none"> • 1 = Off (default) • 2 = On • 3 = Unspecified: Use the VS/VD specification in the SCT file. <p>The cnfintfvsvd command enables VS/VD at the PNNI port level.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route) <p>Default: 0</p>

Syntax (Frame Relay Service Context)

```

addcon <ifNum> <dldci> <chanType> <serviceType> <mastership> <cir>
[-slave <value>] [-slavepersflag <slavepers>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtngprio <Routing Priority>] [-upc <UPC Cnfg>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-prefrte <routeId>] [-directrte <yes/no>]
[-rmbs <remote MBS>] [-cc <OAM CC Cnfg>]

```

Syntax Description (Frame Relay Service Context)

For the applicable parameters, the “local” end is the point at which you are provisioning the connection.

<i>ifNum</i>	Interface number (port number) of the port to connect. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Use the dsports command in the Frame Relay CLI context to display the port numbers for all active Frame Relay ports.</p>
<i>dlci</i>	Specifies the Data-Link Connection Identifier. <ul style="list-style-type: none"> • 2-byte header range: 1-1006 and 1008-1022 • 4-byte header range: 1-8257534 and 8257536-8388607
<i>chanType</i>	Specifies the channel type. Enter a number to indicate one of the following channel types: <ul style="list-style-type: none"> • 1 = frNIW: Frame Relay network interworking • 2 = frSIWtransparent: Service interworking without SDU translation • 3 = frSIWtranslate: Service interworking with SDU translation • 5 = frForward: Frame forwarding • 6 = frNIWReplace: Frame Relay network interworking replace
<i>serviceType</i>	Specifies the service type for the connection. Enter a number to indicate one of the following service types: <ul style="list-style-type: none"> • 1 = highpriority (use cbr1 at ATM endpoints) • 2 = rtVBR: real-time variable bit rate (use vbr3rt at ATM endpoints) • 3 = nrtVBR: non-real-time variable bit rate (use vbr3nrt at ATM endpoints) • 5 = uBR: unspecified bit rate (use ubr at ATM endpoints) • 9 = stdABR: available bit rate (use stdabr at ATM endpoints)
<i>mastership</i>	Controls whether this end of a connection is a master or slave endpoint. Enter a number to indicate the mastership of the endpoint as follows: <ul style="list-style-type: none"> • 1 = master • 2 = slave
<i>cir</i>	Specifies the CIR for the connection. <ul style="list-style-type: none"> • MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps. • MPSM-16-T1E1 range: 0-1984000 bps.
-slave	Identifies the slave endpoint of the connection, in the following format: <i>slave_nsap_address.vpi.vci</i> <p>Note This parameter is required when you configure a master endpoint.</p>
-slavepersflag	Controls whether the endpoint is persistent or non-persistent. Enter a number to indicate the endpoint’s persistency as follows: <ul style="list-style-type: none"> • 0 = persistent (default) • 1 = non-persistent

-eir	<p>Specifies the excess information rate for the connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps. • MPSM-16-T1E1 range: 0-1984000 bps.
-bc	<p>Specifies the Burst Commit size for the connection. Range: 0-2097151 bytes</p> <p>The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300.</p>
-be	<p>Specifies the Burst Excess size for the connection. Range: 0-2097151 bytes</p> <p>The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300.</p>
-detag	<p>Enables or disables Discard Enable Tagging on the connection. This parameter enables or disables tagging of the DE bit on ingress frames as the result of the policing mechanism. Enter a number to enable or disable DE Tagging as follows:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-igde	<p>Enables or disables a connection's response to incoming Discard Enable tags. Enter a number to ignore (disable) or accept (enable) incoming DE tags as follows:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-fecnmap	<p>Specifies the mapping between FECN and EFCI for this connection. Enter a number to set the configuration of the FECN map as follows:</p> <ul style="list-style-type: none"> • 1 = mapEFCI • 2 = setEFCIzero (default)
-demap	<p>Specifies the mapping between DE and CLP for this connection. Enter a number to set the DE to CLP mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapCLP (default) • 2 = setCLPzero • 3 = setCLPone
-clpmap	<p>Specifies the mapping between CLP and DE for this connection. Enter a number to set the CLP to DE mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapDE (default) • 2 = setDEzero • 3 = setDEone • 4 = ignoreCLP
-eqsel	<p>Selects the Egress Queue for this connection. Enter a number to indicate one of the following options:</p> <ul style="list-style-type: none"> • 1 = highPriority • 2 = lowPriority • 3 = notSupported <p>The default value depends on the service type.</p>

-ingut	Specifies the Ingress Percent Utilization for this connection. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent Default: 100 percent.
-egut	Specifies Egress Percent Utilization for this connections. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent Default: 100 percent
-egrat	Specifies the Egress Service Rate. This value is used for CAC to determine if the port can support the connection. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 0-44209688 bps • MPSM-16-T1E1 range: 0 and 1984000 bps
-rtngprio	Specifies the Routing Priority for this connections, in the range 1-15. Default: 8
-upc	Enables or disables UPC configuration on the connection. Enter a number to enable/disable UPC configuration on the connection, as follows: <ul style="list-style-type: none"> • 1 = enable (default) • 2 = disable
-lpcr	Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rpcr	Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-lscr	Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rscr	Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-lmcr	Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps

-rmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-prefrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Enter the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route (default) • 1-65535: The preferred route id <p>Note Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Enter the dsppcons [-rteid <pref rte id>] command at the PXM card to display all connections associated with a route.</p> <p>Note An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route) <p>Default: 0</p>
-rmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range 0-5000000 cells</p>
-cc	<p>Operations, administration, and maintenance continuity check (OAM CC):</p> <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p>

Error Messages

The system can display error messages for the following reasons:

- Some of the traffic management parameters apply to specific service types (rt-VBR, for example). If you enter a parameter that does not apply to a selected traffic type, the connection is rejected.
- Insufficient resources are available to accept the provisioning request.
- The type of card does not support a certain feature.
- The port cannot support SPVCs.

One of the following error messages appears if one of the preceding causes is true:

- “Port does not support requested service Type”
- “lscr/lmcr not allowed to exceed lpcr (dcmp)”
- “rscr not allowed to exceed rpcr”
- “lpcr must be defined for cbr service Type”
- “rpcr must be defined for cbr serviceType”
- “lpcr and lscr must be defined for vbr service Type”
- “rpcr and rscr must be defined for vbr service Type”
- “lpcr must be defined for abr/ubr service Type”
- “rpcr must be defined for abr/ubr service Type”
- “Requested rcdv is too low”
- “Requested rctd is too low”
- “Requested max cell loss ratio (clr) is too high”
- “Requested cell rate (lscr/lpcr) is too high”
- “Requested cell rate (rscr/rpcr) is too high”

Syntax (PPP Service Context)

```

addcon <ifNum> <dci> <chanType> <serviceType> <mastership> <cir>
[-slave <value>] [-slavepersflag <slavepers>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtnprio <Routing Priority>] [-upc <UPC Cnfg>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-prefrte <routeId>] [-directrte <yes/no>]
[-rmbms <remote MBS>] [-cc <OAM CC Cnfg>]

```

Syntax Description (PPP Service Context)

For the applicable parameters, the “local” end is the point at which you are provisioning the connection.

<i>ifNum</i>	<p>Specifies the interface number (bundle number) of the bundle to connect.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84 <p>Note Enter the dsports command to display the bundle number for all active MLPPP bundles.</p>
<i>dlci</i>	Specifies the data-link connection identifier. Use 1000 for RPM-XF connections.
<i>chanType</i>	<p>Specifies the channel type. The following channel type is valid:</p> <ul style="list-style-type: none"> • 5 = frForward: Frame Forwarding
<i>serviceType</i>	<p>Specifies the service type for the connection. Enter a number to indicate one of the following service types:</p> <ul style="list-style-type: none"> • 2 = rtVBR: real-time variable bit rate (use vbr3rt at ATM endpoints) • 3 = nrtVBR: non-real-time variable bit rate (use vbr3nrt at ATM endpoints)
<i>mastership</i>	<p>Controls whether this end of a connection is a master or slave endpoint. Only master endpoints are allowed.</p> <ul style="list-style-type: none"> • 1 = master • 2 = slave (not supported)
<i>cir</i>	<p>Specifies the CIR for the connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 <ul style="list-style-type: none"> – T1 range: 0-9216000 bps (6 T1s) – E1 range: 0-11984000 bps (6 E1s) • MPSM-16-T1E1 <ul style="list-style-type: none"> – T1 range: 0-6144000 bps (4 T1s) – E1 range: 0-7936000 bps (4 E1s)
-slave	<p>Identifies the slave endpoint of the connection, in the following format:</p> <p><i>slave_nsap_address.vpi.vci</i></p> <p>Note This parameter is required when you configure a master endpoint, and the MPSM is always the master endpoint.</p>
-slavepersflag	<p>Controls whether the endpoint is persistent or non-persistent. Enter a number to indicate the endpoint’s persistency as follows:</p> <ul style="list-style-type: none"> • 0 = persistent (default) • 1 = non-persistent <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-eir	<p>Specifies the excess information rate for the connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps. • MPSM-16-T1E1 range: 0-1984000 bps. <p>Note This parameter is not applicable to connections to the RPM-XF.</p>

-bc	Specifies the Burst Commit size for the connection, in the range 0-2097151 bytes. Note This parameter is not applicable to connections to the RPM-XF.
-be	Specifies the Burst Excess size for the connection, in the range 0-2097151 bytes. Note This parameter is not applicable to connections to the RPM-XF.
-detag	Enables or disables Discard Enable Tagging on the connection. This parameter enables or disables tagging of the DE bit on ingress frames as the result of the policing mechanism. Enter a number to enable or disable DE Tagging as follows: <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default) Note This parameter is not applicable to connections to the RPM-XF.
-igde	Enables or disables a connection's response to incoming Discard Enable tags. Enter a number to ignore (disable) or accept (enable) incoming DE tags as follows: <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default) Note This parameter is not applicable to connections to the RPM-XF.
-fecnmap	Specifies the mapping between FECN and EFCI for this connection. Enter a number to set the configuration of the FECN map as follows: <ul style="list-style-type: none"> • 1 = mapEFCI • 2 = setEFCIzero (default) Note This parameter is not applicable to connections to the RPM-XF.
-demap	Specifies the mapping between DE and CLP for this connection. Enter a number to set the DE to CLP mapping, as follows: <ul style="list-style-type: none"> • 1 = mapCLP (default) • 2 = setCLPzero • 3 = setCLPone Note This parameter is not applicable to connections to the RPM-XF.
-clpmap	Specifies the mapping between CLP and DE for this connection. Enter a number to set the CLP to DE mapping, as follows: <ul style="list-style-type: none"> • 1 = mapDE (default) • 2 = setDEzero • 3 = setDEone • 4 = ignoreCL Note This parameter is not applicable to connections to the RPM-XF.
-eqsel	Selects the Egress Queue for this connection. Enter a number to indicate one of the following options: <ul style="list-style-type: none"> • 1 = highPriority • 2 = lowPriority • 3 = notSupported Note This parameter is not applicable to connections to the RPM-XF.

-ingut	<p>Specifies the Ingress Percent Utilization for this connection. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p> <p>Note This parameter is fixed at 100 percent for connections to the RPM-XF.</p>
-egut	<p>Specifies Egress Percent Utilization for this connections. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p> <p>Note This parameter is fixed at 100 percent for connections to the RPM-XF.</p>
-egrat	<p>Specifies the Egress Service Rate. This value is used for CAC to determine if the port can support the connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 0-44209688 bps • MPSM-16-T1E1 range: 2400 and 1984000 bps <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-rtngprio	<p>Specifies the Routing Priority for this connections, in the range 1-15.</p> <p>Default: 8</p> <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-upc	<p>Enables or disables UPC configuration on the connection. Enter a number to enable/disable UPC configuration on the connection, as follows:</p> <ul style="list-style-type: none"> • 1 = enable (default) • 2 = disable <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-lpcr	<p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rpcr	<p>Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-lscr	<p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rscr	<p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps.

-lmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-rmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-prefrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Enter the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route (default) • 1-65535: The preferred route id <p>Note Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Enter the dspscons [-rteid <pref rte id>] command at the PXM card to display all connections associated with a route.</p> <p>Note An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p> <p>Note This parameter is not applicable to connections to the RPM-XF.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route) <p>Default: 0</p> <p>Note This parameter is not applicable to connections to the RPM-XF.</p>

-rmbs	Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range 0-5000000 cells Note This parameter is not applicable to connections to the RPM-XF.
-cc	Operations, administration, and maintenance continuity check (OAM CC): <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>Note To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p> <p>Note This parameter is not applicable to connections to the RPM-XF.</p>

Related Commands

cnfcon, cnfabr, delcon, dspcon, dspcons, dncon, upon

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM CLI context)

In the following example, the user adds the slave end of an ATM connection on logical port 5, VPI 100, VCI 100. The connection supports CBR service. Note that the user does not specify any optional parameters, so the defaults are applied to the connection.

```
M8830_CH.12.MPSM155[ATM].a > addcon 5 100 100 1 2
slave endpoint added successfully
slave endpoint id : 4700918100000000001A5389430000010C180500.100.100
```



Note

The system returns the slave end connection identifier in the hexadecimal NSAP format with the VPI.VCI at the end. When you add the master endpoint of the connection, type **–slave** followed by this connection identifier.

In the following example, the user adds the master end of the ATM connection on an MPSM-T3E3-155 card in another Cisco MGX 8850 switch. Note that the user does not specify any optional parameters, so the defaults are applied to the connection.

```
M8850_NY.13.MPSM155[ATM].a > addcon 5 100 100 1 1 -casttype 0 -slave
4700918100000000001A5389430000010C180500.100.100
master endpoint added successfully
master endpoint id : 47009181000000000036B5E31B30000010D180500.100.100
```



Note

Enter the **dspcon** or **dspcons** command to verify that connection has been added properly.

Example (Frame Relay Service Context)

In the following example, the user adds the slave end of a Frame Relay connection on logical port 1, DLCI 1000. The channel type is Frame Relay network interworking (frNIW), and it has a high priority service type and a CIR of 20000 bps. This example does not specify any optional parameters, so the defaults are applied to the connection.

```
M8850_NY.13.MPSM155[FR].a > addcon 1 1000 1 1 2 20000
slave endpoint added successfully
slave endpoint id : 4700918100000000036B5E31B30000010D1FFF00.2048.1000
```



Note

The system returns the slave end connection identifier in the hexadecimal NSAP format with the VPI.VCI at the end. When you add the master endpoint of the connection, type **-slave** followed by this connection identifier.

In the following example, the user adds the master end of the Frame Relay connection on an MPSM-T3E3-155 card in another Cisco MGX 8850 switch. In this case, the slave endpoint must be specified. This example does not specify any other parameters, so the defaults are applied to the connection.

```
M8830_CH.12.MPSM155[FR].a > addcon 1 1000 1 1 1 20000 -slave
4700918100000000036B5E31B30000010D1FFF00.2048.1000
master endpoint added successfully
master endpoint id : 4700918100000000036A5E31B30000010D1FFF00.2048.1000
```



Note

Enter the **dspon** or **dspons** command to verify that the connection has been added properly.

Example (PPP Service Context)

In the following example, the RPM-XF slave connection has previously been added. The slave connection has the following attributes:

- NSAP address—47.009181000000000164444B61.000001011802.00
- VPI—0
- VCI—102
- PCR—44433 cps
- SCR—44433 cps

The following command adds a vbr-nrt connection from bundle 13 on the MPSM to the RPM-XF slave connection.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > addcon 13 1000 5 3 1 5952000 -slave
47009181000000000164444B6100000101180200.0.102 -lscr 44433 -lpcr 44433
master endpoint added successfully
master endpoint id : 47009181000000000164444B61000001191FFF00.24.1000
```

addimagrp

Add IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addimagrp** command to create and configure a new IMA Group.

Syntax

```
addimagrp <group> <version> <minLinks> <txImaId> <txFrameLen> <txclkMode> <diffDelayMax>
```

Syntax Description

<i>group</i>	The IMA group number. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 1-42 • MPSM-16-T1E1 range: 1-16
<i>version</i>	The version number of ATM Forum IMA specification. <ul style="list-style-type: none"> • 1 = Version 1.0 • 2 = Version 1.1
<i>minLinks</i>	The minimum number of links that must be operational before the IMA group is operational. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 1-16 • MPSM-16-T1E1 range: 1-8 <p>For example, if you create an IMA group of 4 links and specify a minimum number of 3 links, then three of the four specified links must be operational before the IMA group can be used.</p>
<i>txImaId</i>	The IMA ID number transmitted in the IMA ID field of the ICP cell, in the range 0–255.
<i>txFrameLen</i>	The length of transmitted IMA frame in bytes. For IMA version 1.0, the <i>txImaFrameLength</i> value is 128. For version 1.1, the <i>txImaFrameLength</i> value can be 32, 64, 128, or 256.
<i>txclkMode</i>	Specifies the near-end transmit clock mode. Enter a number to indicate the transmit clock mode as follows: <ul style="list-style-type: none"> • 1 = CTC • 2 = ITC <p>Note Option 2 (ITC) is not supported in Release 5 of the MPSM-T3E3-155.</p>
<i>diffDelayMax</i>	The maximum differential delay in milliseconds. <ul style="list-style-type: none"> • T1 range: 1–275 ms • E1 range: 1–220 ms

Related Commands

delimagrp, **dspimagrp**, **dspimagrps**, and **cnfimagrps**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the example that follows, the user adds an IMA group with the following values:

Parameter	group	version	minLinks	txImald	txFrameLen	txclkMode	diffDelayMax
Value	1	2	4	3	64	1	275

```
MGX8850.11.MPSM[ATM].a > addimagrp 1 2 4 3 64 1 275
```

addimalnk

Add IMA Link

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addimalnk** command to add a T1 or E1 line or path to an IMA *group*.



Note After you add a line or path to an IMA group, it becomes an *IMA link*. Only T1 or E1 lines or paths can be IMA links.

Syntax

```
addimalnk <link> <group>
```

Syntax Description

<i>link</i>	<p>Identifies the line or path to add to the IMA group:</p> <ul style="list-style-type: none"> • DS1/E1 line: <i>bay.line</i> • DS1/E1 path: <ul style="list-style-type: none"> – DS3 line: <i>bay.line:ds1</i> – DS3 payload: <i>bay.line.sts:ds1</i> – VT payload : <i>bay.line.sts:vtg.vt</i> – VT structured payload: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note The MPSM-16-T1E1 requires all links in an IMA Group be within lines 1-8 or 9-16. For example, an IMA Group with lines 7,8 and 9 is not valid.</p> <p>Note Enter the dsplns or dsppaths -all command to display all available lines or paths on the card.</p>
<i>group</i>	<p>Specifies the IMA group number.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 1-42 • MPSM-16-T1E1 range: 1-16 <p>Note Enter the dspimagrps command to display the all active IMA groups on the current card. You must be in the ATM service context to view or configure IMA groups.</p>

Related Commands

dspimagrp, **cnfimagrps**, **dspimalnk**, **delimalnk**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user adds the IMA path 1.1.2:1 to the IMA group 1.

```
MGX8850.11.MPSM[ATM].a > addimaink 1.1.2:1 1
```

addimaport

Add IMA Port

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addimaport** command to create and configure a new IMA virtual interface (*ifnum*) for the specified IMA *group*.

Syntax

```
addimaport <ifNum> <group> <guaranteedRate> <maxRate> <sctID> <ifType> [-vpi vpi] [-minvpi minvpi] [-maxvpi maxvpi]
```

Syntax Description

<i>ifNum</i>	Specifies an interface number (port number) for the port you are adding. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4-499 MPSM-T3E3-155 range: 4-1003 <p>Note Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>
<i>group</i>	The number of the IMA group to which you want to add an IMA port. <p>Note Enter the dspimagrps command to display the all active IMA groups on the current card.</p>
<i>guaranteedRate</i>	The guaranteed minimum bandwidth rate in cells per second. <p>Range for T1: 50 to $N * (3622 * (M-1)/M * 2048/2049)$</p> <p>Range for E1: 50 to $N * (4528 * (M-1)/M * 2048/2049)$</p> <p>N = the number of IMA links in the IMA group M = the IMA group frame length</p> <p>Note The guaranteed rate and max rate settings must be the same.</p>
<i>maxRate</i>	The maximum bandwidth rate for the IMA port in cells per second. See <i>guaranteedRate</i> . <p>Note The guaranteed rate and max rate settings must be the same.</p>
<i>sctID</i>	The ID number of the port SCT file on the PXM disk, in the range from 0–255. <p>Default:0.</p>

<i>ifType</i>	<p>Specifies the port as one of the following types of interfaces:</p> <ul style="list-style-type: none"> • 1 = UNI (User-to-Network Interface) • 2 = NNI (Network-to-Network Interface) • 3 = VNNI (Virtual Network-to-Network Interface) • 4 = VUNI (Virtual User-to-Network Interface) • 5 = EVUNI (Enhanced Virtual User-to-Network Interface) • 6 = EVNNI (Enhanced Virtual Network-to-Network Interface) <p>EVNNI and EVUNI permit a range of VPIs for a single interface, and this range of VPIs represents the virtual NNI or virtual UNI trunk. VNNI and VUNI allow only one VPI for a single interface, and that VPI represents the virtual NNI or virtual UNI trunk. Multiple VNNIs and EVNNIs can coexist on the same line.</p>
-vpi	<p>Virtual Path Identifier for a VNNI or VUNI interface:</p> <ul style="list-style-type: none"> • VNNI range: 1–4095 • VUNI range: 1–255
-minvpi	<p>The minimum VPI for an EVUNI or EVNNI interface:</p> <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095
-maxvpi	<p>The maximum VPI for an EVUNI or EVNNI interface:</p> <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095

Related Commands

dspport, dsports, delport, cnfport

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the example that follows, the user adds port 32 to IMA group 2 with the following values:

Parameter	ifNum	group	guaranteedRate	maxRate	sctID	ifType
Value	32	1	10000	10000	1	2

```
MGX8850.2.MPSM155 [ATM] .a> addimaport 32 1 10000 10000 1 2
```

addlnloop

Add Line Loop

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addlnloop** command to place a line in loopback mode. For additional information about loopbacks supported by the MPSM card, see [Chapter 6, “Card Management on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)



Note

Before changing from one loopback mode to another, you must first delete the existing loopback by executing **dellnloop** or **addlnloop** with the no loopback parameter.

Syntax

```
addlnloop { -ds3 | -e3 | -sonet | -ds1 | -e1 } <bay.line> <-lpb loopback type>
```

Syntax Description

-ds3 -e3 -sonet -ds1 -e1	Select the keyword that corresponds the line type. Note For MPSM-T3E3-155 cards, the keyword -ds3 applies to both DS3 and E3 line types.
<i>bay.line</i>	Identifies the line that you want to place in local loopback mode, in the format <i>bay.line</i> . Note Enter the dsplns command to display the line numbers for all lines on the current card.
-lpb	Specifies the loopback type to apply. <ul style="list-style-type: none"> • 1 = No loopback • 2 = Local loopback • 3 = Remote loopback

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

dellnloop

Example

In the following example, the user places DS3 line 1.1 in the local loopback state.

```
MGX8850.1.11.MPSM[ATM].a > addlnloop -ds3 1.1 -lpb 2
```

addmfrbundle

Add Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **addmfrbundle** command to add an MFR bundle.

Syntax

addmfrbundle *<bundleNum>* *<activationClass>*

Syntax Description

<i>bundleNum</i>	Bundle Number, in the range 1-42
<i>activationClass</i>	Bundle activation class: <ul style="list-style-type: none"> • 1 = Class A—At least one bundle links must be operational for the MFR Bundle to be operational • 2 = Class B—All the bundle links must be operational for the MFR Bundle to be operational • 3 = Class C—Configured number of bundle links must be operational for the MFR Bundle to be operational.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

cnfmfrbundle, **delmfrbundle**, **dspmfrbundle**

Example

In the following example, the user adds MFR bundle number 5 with Class A activation.

```
M8850_SF.10.MPSM155[FR].a > addmfrbundle 3 1
```



Note

Adding a bundle does not automatically create an MFR port for the bundle. Add the MFR port using the **addmfrport** command.

addmfrlnk

Add Multi-link Frame Relay Link

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **addmfrlnk** command to add links to an MFR bundle.

Syntax

```
addmfrlnk <link> <bundleNum>
```

Syntax Description

<i>link</i>	<p>Specifies a DS1 or E1 path:</p> <ul style="list-style-type: none"> • DS3 payload: <i>bay.line.sts:ds1</i> • VT payload: <i>bay.line.sts:vtg.vt</i> • VT structured: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsppaths -all command to display all available paths on the card.</p>
<i>bundleNum</i>	<p>Bundle number, in the range 1-42</p> <p>Note Enter the dspmfrbundles command to display all bundles on the card.</p>

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

cnfmfrlnk, **dspmfrlnk**, **delfmfrlnk**, **dspmfrbundles**

Example

In the following example, the user adds DS1 link 1.1:11 to bundle 3.

```
M8850_SF.10.MPSM155[FR].a > addmfrlnk 1.1:11 3
```


addmfrport

Add Multi-link Frame Relay Port

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **addmfrport** command to add and configure a port for an MFR bundle.

Syntax

```
addmfrport <ifNum> <bundle> <portType> <sct>
[-rat <rat>] [-oversub <oversub>]
[-lmiSig <lmiSigType>] [-asynUpdt <updateType>]
[-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>]
[-n391 <n391Value>] [-n392 <n392Value>] [-n393 <n393Value>]
```

Syntax Description

<i>ifNum</i>	A number for the port, in the range 1-1003.
<i>bundleNum</i>	The MFR bundle number, in the range 1-42. Note Enter the dspmfrbundles command to display all MFR bundles on the card.
<i>portType</i>	Type of logical interface (port): <ul style="list-style-type: none"> 1 = Frame Relay Service 3 = Frame Forward (Not applicable for MFR bundles)
<i>sct</i>	The Service class template (SCT) for the port, in the range 0–255. Default: 0 Note The port SCT file must exist and be registered on the PXM disk before it is available for use. Enter the PXM dspsects command to view all registered SCT files on the PXM card.
-rat	The egress service ratio of the high priority and the low priority queues, in the range 0-15. <ul style="list-style-type: none"> Enter 0 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis. The default setting is 1. In this case, the traffic of the CBR and rt-VBR service categories is allocated to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue.
-oversub	Oversubscription control: <ul style="list-style-type: none"> 1 = enable 2 = disable (default)

-lmiSig	<p>LMI signaling protocol type:</p> <ul style="list-style-type: none"> • 2 = No Signaling (default) • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI <p>Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.</p>
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status (default) • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 5-30. Default: 10</p>
-t392	<p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bi-directional polling is present. Range 5-30. Default: 15</p>

-lmiSig	<p>LMI signaling protocol type:</p> <ul style="list-style-type: none"> • 2 = No Signaling (default) • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI <p>Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.</p>
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status (default) • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 5-30. Default: 10</p>
-t392	<p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bi-directional polling is present. Range 5-30. Default: 15</p>

-lmiSig	<p>LMI signaling protocol type:</p> <ul style="list-style-type: none"> • 2 = No Signaling (default) • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI <p>Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.</p>
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status (default) • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable (default)
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 5-30. Default: 10</p>
-t392	<p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bi-directional polling is present. Range 5-30. Default: 15</p>

-n391	N391 counter. This setting establishes the Full Status (status of all PVCs) polling cycle. The user (DTE) sends a Full Report Status Enquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 1- 255. Default: 6
-n392	N392 counter. This setting specifies the UNI/NNI error threshold. This is the number of errors during N393 events that will cause an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1-10. Default: 3
-n393	N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events will cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could go in and out of an error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the -n392 parameter. Range: 1-10. Default: 4

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

cnfport, delport, dspport

Example

In the following example, the user adds a port for MFR bundle 3, specifying Frame Relay Service and the default service class template.

```
M8850_SF.10.MPSM155[FR].a > addmfrport 111 3 1 0
```

addmpbundle

Add an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **addmpbundle** command to add an MLPPP bundle.

Syntax

```
addmpbundle <bundleNumber> [-mrru <value>] [-endDisc <value>]
```

Syntax Description

<i>bundleNumber</i>	A number that identifies the new bundle. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84
-mrru	Specifies the Max Received Reconstructed Unit (MRRU), in the range 64 - 1524. The default is 1524. After the user adds a link to an MLPPP bundle, the MRRU is sent to the remote end, which notifies the remote end that this link is capable of receiving MLPPP packets.
-endDisc	Describes the bundle endpoint. The value is null terminated string that contains printable ASCII characters, which include A-Z, a-z, and 0-9. Maximum length: 20 characters. The default value is a description of the format <i>Node-Name.SlotNumber.BundleNumber</i> .

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

cnfmpbundle, **delmpbundle**, **dspmpbundle**, **dspmpbundles**

Example

In the following example, the user adds MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > addmpbundle 5
```

addpart

Add Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addpart** command to add a resource partition. Before you add a partition, be sure you have a plan for future developments, such as the addition of a new controller.

For detailed information about adding resource partitions on ATM ports, see the “[Partitioning Port Resources on the PNNI Controller](#)” section in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)

For detailed information about adding resource partitions on Frame Relay ports, see the “[Partitioning Port Resources Between Controllers](#)” section in [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)



Note

The **addpart** and **addrscrptn** commands are identical. The command name “addrscrptn” is consistent with the corresponding command in Release 1 of the MGX 8850 node. Use the command name that you prefer. The same situation applies to commands that display and delete a resource partition.



Note

A resource partition is automatically added when you add an ATM or Frame Relay port with the **addport**, **addmfrport**, or **addimaport** command. Enter the **cnfpart** command to change the configuration of the resource partition, or enter the **addpart** command to create additional resource partitions for a port.

Syntax (ATM Service Context)

```
addpart <if_num> <part_id> <ctrlr_id> <egrminbw> <egrmaxbw> <ingminbw> <ingmaxbw>
<min_vpi> <max_vpi> <min_vci> <max_vci> <minConns> <maxConns>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to add. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4-499 MPSM-T3E3-155 range: 4-1003 <p>Note Enter the dspparts command in the ATM CLI context to see all active ATM partitions.</p>
<i>part_id</i>	A number that identifies the partition you are adding, in the range 1-20. <p>Note The same partition id must be used for all interfaces with the same controller.</p>
<i>ctrlr_id</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. <p>Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.</p>

<i>egrminbw</i>	A guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.
<i>egrmaxbw</i>	A maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001 percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.
<i>ingminbw</i>	A guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)
<i>ingmaxbw</i>	A maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.
<i>min_vpi</i>	Minimum VPI for the partition: <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095
<i>max_vpi</i>	Maximum VPI for the partition <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095 <p>The <i>max_vpi</i> cannot be less than the <i>min_vpi</i>.</p>
<i>min_vci</i>	Minimum VCI, in the range from 1–65535
<i>max_vci</i>	Maximum VCI, in the range from 1–65535 <p>The <i>max_vci</i> cannot be less than the <i>min_vci</i>.</p>
<i>minConns</i>	Guaranteed number of connections. Value: 0 only
<i>maxConns</i>	A maximum number of connections, in the range 10-2000.

Syntax (Frame Relay Service Context)

addpart <ifNum> <ctrlNum> <ctrlId> <lcns> <dlcilow> <dlcihigh> <ibw> <ebw>

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	Specifies the interface number (partition number) of the partition to add. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Enter the dspparts command in the Frame Relay CLI context to see all active partitions.</p>
<i>ctrlNum</i>	Specifies a controller protocol. Enter 2 to specify the PNNI controller. <p>Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.</p>
<i>ctrlr_id</i>	Controller ID number, in the range 1-255.
<i>lcns</i>	Maximum number of connections. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 0-2000 • MPSM-T3E3-155 range: 0-4000

<i>dlcilow</i>	<p>Minimum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 0-8355840, in multiples of 32768. <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32768:</p> <p>0 = (0 x 32768) 163840 = (5 x 32768) 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>
<i>dlcihigh</i>	<p>Maximum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 32767-8355840, in multiples of 32768, minus 1. <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32768 minus 1:</p> <p>32767 = (32768 * 1)-1 163839 = (32768 * 5)-1 6520831 = (32768 * 199)-1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p>
<i>inbw</i>	Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.
<i>ebw</i>	Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.

Related Commands

cnfpart, **delpart**, **dspparts**, **dsppart**

Attributes

Log: yes State: active Privilege: GROUP1

Example

The **addport** and **addmfrport** commands automatically create a partition for the port. Enter the **cnfpart** command to change the automatically-created partitions.

addport

Add Port

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addport** command to create and configure a logical port on an active physical line or logical path.

On a BNC-3-T3 or BNC-3-E3 back card, you can add a port on a physical line, or on a path. On an SFP-2-155 and the SMB-2-155-EL OC3 back card, you can add a port on a path only.

A line or path must be configured and brought up before you can add a port. See the description of the **upln** command to bring up a line, or see the description of the **uppath** command to bring up a path.



Note

The MPSM-T3E3-155 card supports up to 128 ATM ports and 1000 Frame Relay ports. The maximum number of logical ports for the entire MPSM-T3E3-155 is 1000. For example, you can configure 872 Frame Relay ports and 128 ATM ports on a single MPSM-T3E3-155 card.



Note

If you are going to use card statistics, you must use **cnfcdstat** before you add logical ports with the **addport** command. You cannot configure card statistics after adding ports.



Note

Frame Relay ports are not supported on STS-3 paths.

Syntax (ATM Service Context)

```
addport <ifNum> <path_num> <guaranteedRate> <maxRate> <sctID> <ifType> [-vpi <vpi>]
[-minvpi <minvpi>] [-maxvpi <maxvpi>]
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	<p>Specifies an interface number (port number) for the port you are adding.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 4-499 • MPSM-T3E3-155 range: 4-1003 <p>Note Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>
<i>path_num</i>	<p>Identifies the line or path on which to add an ATM port:</p> <ul style="list-style-type: none"> • DS1/E1 or DS3/E3 line: <i>bay.line</i> • STS path: <i>bay.line.sts</i> • DS3/E3/VT path: <ul style="list-style-type: none"> – DS3 payload: <i>bay.line.sts</i> – VT structured payload: <i>bay.line.sts:tug3</i> • DS1/E1 path: <ul style="list-style-type: none"> – DS3 line: <i>bay.line:ds1</i> – DS3 payload: <i>bay.line.sts :ds1</i> – VT payload : <i>bay.line.sts:vtg.vt</i> – VT structured payload: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsplns or dsppaths -all command to display all available line or path identifiers on the card.</p> <p>Note On a BNC-3-T3 or BNC-3-E3 back card, you can add a port on a physical line, or a path on the line. On an SFP-2-155 and the SMB-2-155-EL OC3 back card, you can add a port on a path only.</p>

<i>guaranteedRate</i>	<p>Specifies the guaranteed rate on a port in cells per second. The guaranteed rate can be either max cell rate of the interface, or a multiple of 50.</p> <p>The total guaranteed rates cannot exceed the highest value in the following ranges:</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 ranges: <ul style="list-style-type: none"> – OC3—50 through 353207 cps – STS1—50 through 114113 cps – DS3—between 50 and 96000(PLCP) or 104268(ADM) – E3—50 and 80000 – E1—between 50 and 4528 cps – DS1—between 50 and 3622 cps • MPSM-T3E3-155 and MPSM-16-T1E1 ranges: <ul style="list-style-type: none"> – E1—between 50 and 4528 cps – DS1—between 50 and 3622 cps
Note	<p>For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), the <i>guaranteedRate</i> must be the same as <i>maxrate</i>.</p>
<i>maxRate</i>	<p>Specifies the maximum rate on a logical port in cells/second. For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), <i>maxrate</i> must be the same as <i>guaranteedRate</i>. See <i>guaranteedRate</i>.</p>
<i>sctID</i>	<p>The ID of a service class template (SCT) for the port. The range is 0–255. The SCT file must exist on the PXM disk. See cnfcdsct.</p>
Note	<p>Currently, the system does not support certain parameters in the service class templates (SCTs). These parameters are (when applicable) PCR, SCR, and ICR. You can specify them through addcon, cnfcon, or Cisco WAN Manager.</p>
<i>ifType</i>	<p>Specifies the port as one of the following types of interfaces:</p> <ul style="list-style-type: none"> • 1 = UNI (User-to-Network Interface) • 2 = NNI (Network-to-Network Interface) • 3 = VNNI (Virtual Network-to-Network Interface) • 4 = VUNI (Virtual User-to-Network Interface) • 5 = EVUNI (Enhanced Virtual User-to-Network Interface) • 6 = EVNNI (Enhanced Virtual Network-to-Network Interface) <p>EVNNI and EVUNI permit a range of VPIs for a single interface, and this range of VPIs represents the virtual NNI or virtual UNI trunk. VNNI and VUNI allow only one VPI for a single interface, and that VPI represents the virtual NNI or virtual UNI trunk. Multiple VNNIs and EVNNIs can coexist on the same line.</p>
-vpi	<p>Virtual Path Identifier for a VNNI or VUNI interface:</p> <ul style="list-style-type: none"> • VNNI range: 1–4095 • VUNI range: 1–255

-minvpi	The minimum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095
-maxvpi	The maximum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095

Syntax (Frame Relay Service Context)

```

addport <ifNum> <path> <portType> <sctId>
[-dlciLen <dlciLen>] [-flags <portFlagsBetweenFrames>] [-rat <PortEqueueServiceRatio>]
[-csum <checksum>] [-oversub <overSubscribeEnable>] [-lmiSig <lmiSigType>]
[-asynUpdt <updateType>] [-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>] [-n391 <n391Value>]
[-n392 <n392Value>] [-n393 <n393Value>]
[-ds0speed <ds0speed>] [-ds0beg <ds0beg>] [-ds0num <ds0num>]
[-fragEnable <fragEnable>] [-fragSize <fragSize>] [-hdlcinv <hdlcinv>]

```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the port you are adding. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Note Port numbers 1 through 3 are reserved for broadband Frame Relay ports.</p>
<i>path_num</i>	Identifies the line or path on which to add a frame relay port: <ul style="list-style-type: none"> • DS1/E1 or DS3/E3 line: <i>bay.line</i> • STS path: <i>bay.line.sts</i> • DS3/E3/VT path: <ul style="list-style-type: none"> – DS3 payload: <i>bay.line.sts</i> – VT structured payload: <i>bay.line.sts:tug3</i> • DS1/E1 path: <ul style="list-style-type: none"> – DS3 line: <i>bay.line:ds1</i> – DS3 payload: <i>bay.line.sts:ds1</i> – VT payload : <i>bay.line.sts:vtg.vt</i> – VT structured payload: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsplns or dsppaths -all command to display all available line or path identifiers on the card.</p> <p>Note On a BNC-3-T3 or BNC-3-E3 back card, you can add a port on a physical line, or on a path. On an SFP-2-155 and the SMB-2-155-EL OC3 back card, you can add a port on a path only.</p>

<i>portType</i>	Specifies the type of port: <ul style="list-style-type: none"> • 1 = Frame Relay Service • 3 = Frame Forward
<i>sctId</i>	Specifies the number of the Service class template (SCT) for the port: Range: 0–255 Default: 0
-dlciLen	Specifies the DLCI header length: <ul style="list-style-type: none"> • 1 = Two-byte DLCI header • 2 = Four-byte DLC header (Broadband Frame Relay ports only)
-flags	Specifies the flags between frames: <ul style="list-style-type: none"> • 1 = 1 flag • 2 = 2 flags • 3 = 4 flags • 4 = 8 flags • 5 = 16 flags • 6 = 32 flags • 7 = 64 flags • 8 = 128 flags
-rat	This keyword and argument defines the egress service ratio between the high priority and the low priority queues. Enter the keyword followed by a number that indicates the egress service ratio, in the range from 1 to 15. <ul style="list-style-type: none"> • Enter 1 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis. • The default setting is 1. In this case, the traffic of the CBR and rt-VBR service categories is allocated to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue.
-csum	Checksum type indicator: <ul style="list-style-type: none"> • 1 = crc16 • 2 = crc32
-oversub	Oversubscription indicator: <ul style="list-style-type: none"> • 1 = enable • 2 = disable

-lmiSig	<p>LMI signaling type indicator:</p> <ul style="list-style-type: none"> • 2 = No Signaling • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes. Enter a number to enable/disable enhanced LMI on the port.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 5-30.</p>
-t392	<p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bi-directional polling is present. Range 5-30.</p>
-n391	<p>N391 counter. This setting establishes the Full Status (status of all PVCs) polling cycle. The user (DTE) sends a Full Report Status Enquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 1-255. Default: 6</p>

-n392	N392 counter. This setting specifies the UNI/NNI error threshold. This is the number of errors during N393 events that will cause an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1-10.
-n393	N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events will cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could go in and out of an error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the -n392 parameter. Range: 1-10.
-ds0speed	Specifies the speed of the DS0 channel: <ul style="list-style-type: none"> • 1 = 56 Kbps • 2 = 64 Kbps.
-ds0beg	Specifies the beginning DS0 number: <ul style="list-style-type: none"> • T1 paths: 1- 24 • E1MF and E1CRCMF paths: 2-16, 18-32 (17 is reserved) • other E1 paths = 2-32
-ds0num	Specifies the number DS0 time slots that will follow the beginning DS0: <ul style="list-style-type: none"> • T1 paths: 1- 24 • E1MF and E1CRCMF paths: 1-30 • other E1 paths: 1-31
-fragEnable	Enables or disables fragmentation on the port. <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-fragSize	Specifies the size of the fragments in bytes: <ul style="list-style-type: none"> • 40 • 64 • 128 • 256 • 512
-hdlcinv	Enables/disables HDLC inversion on the port: <ul style="list-style-type: none"> • 1 = enable • 2 = disable

Related Commands

cnfport, delpport, dspport, dspports, dspportset

Attributes

Log: yes

State: active

Privilege: GROUP1

Example —ATM Service Context

In the following example, the user creates logical port 3 on line 3 of bay 1. The minimum and maximum cells per is 96000 cps. The port SCT file ID is 4. The interface type is NNI (specified by the 2 at the end of the command input).

```
MGX8850.6.MPSM155 [ATM] .a > addport 3 1.3 96000 96000 4 2
```

Example —Frame Relay Service Context

In the following example, the user creates logical port 1 on line 1 of bay 1. The port type is Frame Relay (specified by a 1 in the command input). The default SCT (0) is used. The DLCI header length is set to two bytes (specified by a 1 at the end of the command input).

```
mpsm_node.4.MPSM155 [FR] .a > addport 1 1.1 1 0 -dlciLen 1
```

addppplink

Add a link to a MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **addppplink** command to add a link to an existing MLPPP bundle. MPSM-16-T1E1 links are T1/E1 lines, and MPSM-T3E3-155 links are channelized T1/E1 paths.

Syntax

```
addppplink <link> <bay.line> <bundleNumber> [-mru <value>] [-lcpTimeout <msec>]
[-startDS0 <value>] [-numDS0 <value>] [-ds0speed <mode>] [-pfcTx <mode>] [-acfcTx <mode>]
[-loopCheck <mode>]
```

Syntax Description

<i>link</i>	<p>A number for the PPP link.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84
<i>bay.line</i>	<p>The line or path number of the link.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 (DS1/E1 line): <ul style="list-style-type: none"> – <i>bay.line</i>, where bay = 1, line = 1-16. <p>Note All links on a bundle must be in the same range of lines, either 1-8 or 9-16</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 (DS1/E1 path): <ul style="list-style-type: none"> – DS3 line: <i>bay.line:ds1</i> – DS3 payload: <i>bay.line.sts:ds1</i> – VT payload : <i>bay.line.sts:vtg.vt</i> – VT structured payload: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1-3, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Enter the dsplns or dsppaths -all command to display all available lines or paths on the card.</p>
<i>bundleNumber</i>	<p>The MLPPP bundle number to which you are adding a PPP link.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16 • MPSM-T3E3-155 range: 1-84 <p>Note Enter the dspmpbundles command to display all MLPPP bundles on the card.</p>
-mru	<p>Maximum Receive Unit, in the range 64-1524.</p> <p>Default:1500</p>

-lcpTimeout	<p>Note The length of time to wait for an echo reply before bringing down LCP. The value is specified in msec, but is rounded down to the nearest 100 msec.</p> <p>Range: 1000-4294967</p> <p>Default: 10000 msec</p>
-startDS0	<p>Specifies a starting DS0 for a fractional T1/E1 link, in the following ranges:</p> <ul style="list-style-type: none"> • T1 line or path: 1 - 24 • E1 line or path: <ul style="list-style-type: none"> – E1 and CRC types: 2 - 32 (timeslot 0 reserved) – MF or CRCMF types: 2 - 16, 18 - 32 (timeslots 0 and 16 reserved) <p>Note This parameter is required for a fractional T1/E1 link.</p>
-numDS0	<p>Specifies the number of DS0s for a fractional T1/E1 link, in the following ranges:</p> <ul style="list-style-type: none"> • T1 line or path: 1- 24 • E1 line or path: <ul style="list-style-type: none"> – E1 and CRC types: 1- 31 (timeslot 0 reserved) – MF or CRCMF types: 1 - 30 (timeslots 0 and 16 reserved) <p>Default: Maximum number of DS0s</p> <p>Note A fractional T1/E1 link has a contiguous set of DS0s.</p>
-ds0speed	<p>Specifies the speed of DS0 channels.</p> <ul style="list-style-type: none"> • 1 = 56K, • 2 = 64K (default)
-pfcTx	<p>Controls the compression of PF in PPP packets transmitted from this end.</p> <ul style="list-style-type: none"> • 1 = enable, PFC is performed if the far end is capable of receiving compressed PF. • 2 = disable, PFC is not performed, even if the far end is capable of receiving compressed PF. <p>Default: 2</p>
-acfcTX	<p>Controls the compression of address/control fields in PPP packets transmitted from this end.</p> <ul style="list-style-type: none"> • 1 = enable, ACFC is performed if the far end is capable of receiving compressed address/control fields. • 2 = disable, ACFC is not performed, even if far end is capable of receiving compressed address/control fields. <p>Default: 2</p>
-loopCheck	<p>Enables or disables loopback check. If loopback check is enabled, when the magic number in the incoming echo reply is the same as of this PPP link, then this PPP link assumes that the far end is in loopback and brings down the LCP session.</p> <ul style="list-style-type: none"> • 1 = enabled (default) • 2 = disabled

■ addppplink

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

cnfppplink, delppplink, dsppplink

Example

In the following example, the user adds a PPP link 5 to line 1.5 and bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > addppplink 5 1.5 5
```

addpppmux

Enable PPPMUX on an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **addpppmux** command to enable a PPPMUX on an MLPPP bundle.

Syntax

```
addpppmux <bundleNumber> [-pid <value>] [-muxTimer <value>] [-frameLength <value>]
[-subFrameLength <value>] [-subFrameCount <value>]
```

Syntax Description

<i>bundleNumber</i>	Specifies the bundle number to configure for PPPMUX. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1-16 MPSM-T3E3-155 range: 1-84 <p>Note Enter the dspmpbundles command to display all MLPPP bundles on the card.</p>
-pid	Specifies the Default Protocol ID, in the range 0 - 65535 Default: 33 (cUDP).
-muxTimer	Specifies the maximum length of time to wait after the multiplexer operation starts before multiplexing begins. Values: 0 (disabled) or 64-4000000 microseconds Default: 600 microseconds
-frameLength	Specifies the maximum length of a multiplexer frame, in the range 1 - 512. Default: 256
-subFrameLength	Specifies the maximum length of a sub-frame, in the range 1 - 512. Default: 64
-subFrameCount	Specifies the maximum number of sub-frames in a multiplex frame, in the range 2 - 15. Default: 15

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

cnfpppmux, delpppmux, dspppmux

Example

In the following example, the user adds PPPMUX to bundle 1.

```
U4.5.MPSM16T1E1PPP[FR].a > addppmux 1
```

addrscrtn

Add Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **addrscrtn** command to add a logical partition of resources for a network controller on a port. Before you add resource partitions, be sure a plan exists for future developments, such as the addition of a new controller.

For detailed information about adding resource partitions on ATM ports, see the [“Partitioning Port Resources on the PNNI Controller”](#) section in [Chapter 3, “Provisioning ATM Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)

For detailed information about adding resource partitions on Frame Relay ports, see the [“Partitioning Port Resources Between Controllers”](#) section in [Chapter 4, “Provisioning Frame Relay Services on MPSM-T3E3-155 and MPSM-16-T1E1.”](#)



Note

The **addpart** and **addrscrtn** commands are identical. Use the command name that suits you. The same identification applies to commands that display and delete a resource partition.



Note

A resource partition is automatically added when you add an ATM or Frame Relay port with the **addport**, **addmfrport**, or **addimaport** command. You can use the **cnfrscrtn** command to change the configuration of the resource partition, and you can use the **addrscrtn** command to create additional resource partitions for a port.

Syntax (ATM Service Context)

```
addrscrtn <if_num> <part_id> <ctrlr_id> <egrminbw> <egrmaxbw> <ingminbw> <ingmaxbw>
<min_vpi> <max_vpi> <min_vci> <max_vci> <minConns> <maxConns>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to add. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 4-499 MPSM-T3E3-155 range: 4-1003 <p>Note Enter the dspparts command in the ATM CLI context to see all active ATM partitions.</p>
<i>part_id</i>	A number that identifies the partition you are adding, in the range 1-20. <p>Note The same partition id must be used for all interfaces with the same controller.</p>
<i>ctrlr_id</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. <p>Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.</p>

<i>egrminbw</i>	A guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.
<i>egrmaxbw</i>	A maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001 percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.
<i>ingminbw</i>	A guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)
<i>ingmaxbw</i>	A maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.
<i>min_vpi</i>	Minimum VPI for the partition: <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095
<i>max_vpi</i>	Maximum VPI for the partition <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095 <p>The <i>max_vpi</i> cannot be less than the <i>min_vpi</i>.</p>
<i>min_vci</i>	Minimum VCI, in the range from 1–65535
<i>max_vci</i>	Maximum VCI, in the range from 1–65535 <p>The <i>max_vci</i> cannot be less than the <i>min_vci</i>.</p>
<i>minConns</i>	Guaranteed number of connections. Value: 0 only
<i>maxConns</i>	A maximum number of connections, in the range 10-2000.

Syntax (Frame Relay Service Context)

```
addrscrtn <ifNum> <ctrlNum> <ctrlId> <lens> <dlcilow> <dlcihigh> <ibw> <ebw>
```

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	Specifies the interface number (partition number) of the partition to add. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003 <p>Identifies the logical interface to which you want to add a resource partition.</p> <p>Note Enter the dspparts command in the Frame Relay CLI context to see all active partitions.</p>
<i>ctrlNum</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. <p>Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.</p>
<i>ctrlr_id</i>	Controller ID number, in the range 1-255.

<i>lcns</i>	<p>Maximum number of connections.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 0-2000 • MPSM-T3E3-155 range: 0-4000
<i>dlcilow</i>	<p>Minimum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 0-8355840, in multiples of 32768. <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32768:</p> <p>0 = (0 x 32768) 163840 = (5 x 32768) 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>
<i>dlcihigh</i>	<p>Maximum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 32767-8355840, in multiples of 32768, minus 1. <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32768 minus 1:</p> <p>32767 = (32768 * 1)-1 163839 = (32768 * 5)-1 6520831 = (32768 * 199)-1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p>
<i>inbw</i>	<p>Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>
<i>ebw</i>	<p>Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>

Related Commands

cnfrscrtn, delrscrtn dsprscrtns, dsprscrtn

Attributes

Log: yes State: active Privilege: GROUP1

Example

The **addport**, **addimaport**, and **addmfrport** commands automatically create a partition for the port. Enter the **cnfpart** command to change the automatically-created partitions.

bootchange

Boot Change

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **bootchange** command to set the boot IP address and gateway address of the card. The boot IP address is used only when the card boots up.

The only parameters you should enter are “inet on ethernet (e)” and “gateway inet (g).” The **bootchange** command presents one parameter at a time. Therefore, press the Return (or Enter) key at each prompt except for these two.



Note

The boot IP address does not get saved when you enter the **saveallcnf** on the PXM card.



Note

Enter the **ipifconfig** command at the PXM card to assign IP addresses for the MPSM-T3E3-155 card and the shelf.

Syntax

bootchange

Related Commands

none

Attributes

Log: yes State: active Privilege: SERVICE_GP

Example

In the following example the user enters the **bootchange** command on an MPSM-T3E3-155 card:

```
M8850_SF.9.MPSM155 [FR].a > bootchange ?

.' = clear field; '-' = go to previous field; ^D = quit

boot device           : lnPci0
processor number      : 0
host name             : sycwanmvt1
file name             : /usr/autoprog/MPSM_155/mpsm155_diag_5_00_02.fw
inet on ethernet (e) : 11.0.100.2
inet on backplane (b):
host inet (h)         : 11.0.1.1
gateway inet (g)     : 11.0.1.1
user (u)              : autoprog
ftp password (pw) (blank = use rsh):
flags (f)             : 0x0
target name (tn)     : mpsm155
startup script (s)   :
other (o)             :
```

bye

Bye

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **bye** command to exit the current CLI session.

Syntax

bye

Related Commands

logout, exit

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user exits the current CLI session.

```
M8850_NY.13.MPSM155 [ATM] .a > bye
```

(session ended)

CC

Change Card

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cc** command to change from the current CLI to the CLI of another card. Follow **cc** with a slot number.

Syntax

```
cc <slot number>
```

Syntax Description

slot number The number of the destination card slot.

Note To display a list of all cards installed on the current switch, **cc** to the active PXM card, and then enter the **dspecds** command.

Related Commands

None

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user changes from the command line of the MPSM-T3E3-155 in slot 3 to the command line of the PXM in slot 7.

```
mpsm_node.3.MPSM155[FR].a > cc 7
```

```
(session redirected)
```

```
mpsm_node.7.PXM.a >
```



Note

If the slot is empty or the card is unreachable, the system displays an applicable message.

CCC

Change Card

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **ccc** command to change from the current CLI to the CLI of another card. Follow **ccc** with a slot number.

Syntax

```
ccc <slot number>
```

Syntax Description

<i>slot number</i>	The number of the destination card slot.
--------------------	--

Related Commands

None

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user changes from the command line of the MPSM-T3E3-155 card in slot 13 to a high priority command line session on the AXSM card in slot 1.

```
M8850_NY.13.MPSM155[FR].a > ccc 1
```

```
(ccc session redirected)
```

```
_UNKNOWN_.1.AXSM.a >  
This is a high priority session.
```

clradjlnalmcnt

Clear Adjacent Line Alarm Counters

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **clradjlnalmcnt** command to clear the statistical alarms and alarm counters for the adjacent back card. This command applies only when adjacent MPSM-T3E3-155 cards are configured as a redundant pair and when a line on the adjacent card protects a line on the working card (inter-card APS).

Syntax

clradjlnalmcnt <bay.line>

Syntax Description

bay.line Identifies the line adjacent to the back card whose line alarm counters you want to clear, in the format *bay.line*. If you enter the <*bay.line*> of the protection line in an APS configuration, then the working line's alarms counters will be cleared. If you enter the <*bay.line*> of the working line in an APS configuration, then the protection line's alarms counters will be cleared.

Note Enter the **dspapslns** command to display the line numbers for the working and protection lines.

Related Commands

dspadjlnalm, **dspadjlnalmcnt**, **dspapslns**

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the alarm counters on bay 1, line 2 of the adjacent back card.

```
M8850_NY.13.MPSM155 [ATM] .a > clradjlnalmcnt 1.2
```

clrbeent

Clear Bit Error Count

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrbeent** command to clear the APS-related bit error counters for working and protection line pairs. To display the error counters, enter the **dspbeent** command.

Syntax

clrbeent <working-bay.line>

Syntax Description

<i>working-bay.line</i>	Identifies the bay and the line number, which is always 1.1 for the MPSM-T3E3-155.
-------------------------	--

Related Commands

dspbeent

Attributes

Log: no State: active Privilege: SERVICE_GP

Example

In the following example, the user clears the APS-related bit error counters for line 1.1 and 1.2 on card 9.

```
M8850_SF.9.MPSM155[FR].a > clrbeent 1.2
ERR: Wrong value for Working Line number or APS not configured on the line

M8850_SF.9.MPSM155[FR].a > clrbeent 1.1
Do you want to clear the bit error count in line 9.1.1 [Y/N]? y

The Count for line 9.1.1 is cleared
Do you want to clear the bit error count in line 9.1.2 [Y/N]? y

The Count for line 9.1.2 is cleared
```

clrchancnt

Clear Channel Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrchancnt** command to clear all statistics counters for ATM cells on a connection (channel). The command applies to an SVC or an SPVC. For a list of displayed counters, see the example of **dspschancnt**. After you execute **clrchancnt**, the previous counter contents are unrecoverable.

Syntax (ATM Service Context)

```
clrchancnt <ifNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the channel to clear.
	Note Enter the dspscons command in the ATM context to display the interface number, VPI, and VCI for all active ATM channels.
<i>vpi</i>	The VPI for the connection.
<i>vci</i>	The VCI for the connection.

Syntax (Frame Relay Service Context)

```
clrchancnt <ifNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Interface number (port number) of the channel to clear.
	Note Enter the dspscons command in the Frame Relay context to display the interface number and DLCI for all active channels.
<i>dlci</i>	Data-link Connection Identifier.

Syntax (PPP Service Context)

```
clrchancnt <ifNum> <dlci>
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (bundle number) of the bundle statistics to clear.
	Note Enter the dspscons command to display the bundle number and DLCI for all active MLPPP channels.
<i>dlci</i>	Data-link Connection Identifier. Value: 1000 only for RPM-XF channels.

Related Commands

clrchanants, dspchanant

Attributes

Log: yes State: active Privilege: SUPER_GP

Example (ATM Service Context)

In the following example, the user clears all the channel counters on an MPSM-T3E3-155 for interface 12, VPI 35, and VCI 120.

```
M8850_NY.13.MPSM155 [ATM] .a > clrchanant 12 35 120
```

Example (Frame Relay Service Context)

In the following example, the user clears all the channel counters on an MPSM-16-T1E1 for interface 11, DLCI 150.

```
M8850_SF.27.MPSM16T1E1 [FR] .a > clrchanant 11 150
```

Example (PPP Service Context)

In the following example, the user clears all the channel counters on an MPSM-16-T1E1 for interface 11, DLCI 1000.

```
M8850_SF.25.MPSM16T1E1PPP [FR] .a > clrchanant 11 1000
```

clrchancnts

Clear Channel Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrchancnts** command to clear the statistics counters on all connections.

Syntax

clrchancnts

Syntax Description

No parameters

Related Commands

dspchancnt, clrchancnt

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the statistics counters for all connections.

```
M8850_SF.10.MPSM155[ATM].a > clrchancnts
```

clrilmicnt

Clear ILMI Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrilmicnt** command to clear the ILMI statistics for a partition and logical interface (port).

Syntax

clrilmicnt *<ifNum>* *<partId>*

Syntax Description

ifNum Specifies the interface number (port number) on which you want to clear ILMI statistics.

Note Enter the **dspparts** command in the ATM CLI context to display the interface number and partition id for all active ATM ports.

partId The partition identifier, in the range 1- 20.

Related Commands

dspilmicnt, **dspilmi**, **dspilmis**

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Examples

In the following example, the user clears the ILMI statistics for logical interface 10, resource partition 1.

```
mpsm_node.1.MPSM155 [ATM] .a > clrilmicnt 10 1
ilmi stats for ifNum 10, partId 1 cleared
```

clrimadelay

Clear IMA Delay

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrimadelay** command to clear the accumulated delay in the signal propagation time for all the links in the specified IMA *group*. Using this command may improve performance.

Syntax

clrimadelay <*group*>

Syntax Description

<i>group</i>	The IMA group number.
Note	Enter the dspimagrps command to display a list of all IMA groups on the current card.

Related Commands

None

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user clears the accumulated IMA delay for IMA group 10.

```
mpsm_node.1.MPSM155 [ATM] .a > clrimadelay 10
```

clrimagrpalmcnt

Clear IMA Group Alarm Count

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrimagrpalmcnt** command to clear the alarm counters for the specified IMA *group*.

Syntax

clrimagrpalmcnt <*group*>

Syntax Description

<i>group</i>	The IMA group number.
Note	Enter the dspimagrps command to display a list of all IMA groups on the current card.

Related Commands

clrimagrpalmcnts, **clrimalnkcnts**, **dspimagrpalmcnt**, **dspimagrpbucketcnt**

Attributes

Log: yes State: active Privilege: SUPER_GP

Example

In the following example, the user clears the alarm count for IMA group 10.

```
mpsm_node.1.MPSM155 [ATM] .a > clrimagrpalmcnt 10
```

clrimagrpalmcnts

Clear IMA Group Alarm Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrimagrpalmcnts** command to clear the alarm counters for all configured IMA groups.

Syntax

clrimagrpalmcnts

Syntax Description

No parameters

Related Commands

clrimagrpalment, **dspimagrpalms**, **dspimagrpalms**, **dspimagrpalment**

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the alarm count for all configured IMA groups.

```
M8850_NY.13.MPSM155 [ATM] .a > clrimagrpalmcnts
```

clrimalnkcnt

Clear IMA Link Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrimalnkcnt** command to clear the IMA link performance and statistic counters on the specified *link*.

Syntax

clrimalnkcnt <*link*>

Syntax Description

link Identifies the line or path for which to clear counters:

Note Enter the **dspimalnks** command to display a list of all links on the current card.

Related Commands

clrimalnkcnts, **dspimalnkcnt**, **dspimalnkalm**, **dspimalnkalm**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the clears the link identified by the number 1.1.3:1.1.

```
mpsm_node.1.MPSM155 [ATM] .a > clrimalnkcnt 1.1.3:1.1
```

clriminalkcnts

Clear IMA Alarm Counts

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clriminalkcnts** command to clear the link counters for all configured IMA links on the card.

Syntax

clriminalkcnts

Syntax Description

No parameters

Related Commands

clriminalkcnt, **dspimalnkcnt**, **dspimalnkalm**, **dspimalnkalm**s

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the link counters for all configured IMA links.

```
mpsm_node.1.MPSM155 [ATM] .a > clriminalkcnts
```


clearalmcnt

Clear Line Alarm Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clearalmcnt** command to clear the statistical alarms and alarm counters for the specified line.

Syntax

```
clearalmcnt <bay.line>
```

Syntax Description

bay.line Identifies the line whose line alarm counters you want to clear, in the format *bay.line*.

Note Enter the **dsplnalmcnt** command to display the line numbers for all lines on the current card.

Related Commands

dsplnalmcnt

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the alarm counters for line 1.1.

```
mpsm_node1.9.MPSM155 [ATM] .a > clearalmcnt 1.1
```

clrmfrbundlecnt

Clear counts on a Multi-Link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrmfrbundlecnt** command to clear the statistics counters for an MFR bundle.

Syntax

clrmfrbundlecnt *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MFR bundle number.

Note Enter the **dspmfrbundles** command to display all MFR bundles on the card.

Attributes

Log: yes

State: active

Privilege: any

Related Commands

dspmfrbundlecnt

Example

In the following example, the user clears the counters for bundle 5.

```
M8850_SF.10.MPSM155[FR].a > clrmfrbundlecnt 5
```

clrmfrbundlecnts

Clear all counters on a Multi-Link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrmfrbundlecnts** command to clear the statistics counters on all MFR Bundles.

Syntax

clrmfrbundlecnts

Syntax Description

Attributes

Log: yes

State: active

Privilege: any

Related Commands

dspmfrbundlecnt

Example

In the following example, the user clears all counters for all MFR bundles.

```
M8850_SF.10.MPSM155 [FR] .a > clrmfrbundlecnts
```

clrmfrlnkcnt

Clear Multi-link Frame Relay Counters for a Link

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrmfrlnkcnt** command to clear the statistics counters for an MFR link.

Syntax

clrmfrlnkcnt <link>

Syntax Description

<i>link</i>	Specifies the MFR link for which to clear statistics. Enter the dspmfrlnks command to display all MFR links on the card.
-------------	--

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

dspmfrlnkcnt, **dspmfrlnks**

Example

In the following example, the user clears counters for link 1.1:11.

```
M8850_SF.10.MPSM155[FR].a > clrmfrlnkcnt 1.1.:11
```

clrmfrlnkcnts

Clear all Multi-link Frame Relay Link Counts

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrmfrlnkcnts** command to clear all statistics counters for all MFR links.

Syntax

clrmfrlnkcnts

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

dspmfrlnkcnt

Example

In the following example, the user clears all MFR link counters.

```
M8850_SF.10.MPSM155 [FR] .a > clrmfrlnkcnts
```

clrmpbundlecnt

Clear statistics for an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **clrmpbundlecnt** command to clear the statistics counters for an MLPPP Bundle.

Syntax

clrmpbundlecnt *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MLPPP bundle number for which to clear statistics.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: yes

State: active

Privilege: any

Related Commands

dspmpbundlecnt

Example

In the following example, the user clears the counters for bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > clrmpbundlecnt 5
```

clrlmpbundlecnts

Clear all Statistics on a Multi-Link PPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1

Enter the **clrlmpbundlecnts** command to clear all the statistics counters for all MLPPP bundles.

Syntax

clrlmpbundlecnts

Syntax Description

None.

Attributes

Log: yes

State: active

Privilege: any

Related Commands

addmpbundle

Example

In the following example, the user clears the all MP bundle statistics.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > clrlmpbundlecnts
```

clrpathalmcnt

Clear Path Alarm Counters

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **clrpathalmcnt** command to clear all alarm counters on the specified path for the current 15 minute interval.

Syntax

clrpathalmcnt [*path_filter*] <*path_num*>

Syntax Description

<i>path_filter</i>	<p>Identifies the path type on which to clear the current alarm counters.</p> <p>Possible <i>path_filter</i> keywords are:</p> <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the clrpathalmcnt command without the -path_filter option, and only STS/STM paths are configured on the card, the alarms counters are cleared on the STS/STM path. If there are DS3 paths configured on the card as well as STS/STM paths, and you do not include the -path_filter option with the dnpath command, the alarms counters are cleared on the lowest-level path (the DS3 path). To avoid confusion, Cisco recommends that you specify a -path_filter when you display a path.</p>
<i>path_num</i>	<p>The path for which you want to clear alarm counters.</p> <p>Note Enter the dsppaths <<i>path_filter</i>> command to display the path numbers for available paths.</p>

Related Commands

dsppathalmcnt

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears the path alarm counters on the DS1 path 1.1.3:7.4.

```
mpsm_node.1.MPSM155 [ATM] .a > clrpathalmcnt -ds1 1.1.3:7.4
```

clrportcnt

Clear Port Counter

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrportcnt** command to clear the statistics counters on a specific logical port.

Syntax (ATM Service Context)

clrportcnt <ifNum>

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies an interface number (port number) for the port for which you are clearing counters.
--------------	---

Note Enter the **dsports** command to display all ATM port numbers.

Syntax (Frame Relay Service Context)

clrportcnt <ifNum>

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the port you are adding.
--------------	--

- MPSM-16-T1E1 range: 1-499
- MPSM-T3E3-155 range: 1-1003

Note Enter the **dsports** command to display all Frame Relay port numbers.

Related Commands

clrportcnts, **dsportcnt**

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the clears the counters on port 50.

```
mipsm_node.5.MPSM155[FR].a > clrportcnt 50
```

clrportcnts

Clear Port Counters

Service Context—Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrportcnts** command to clear all Frame Relay port counters on the current card.

Syntax

clrportcnts

Syntax Description

No parameters

Related Commands

clrportent, **dspportent**

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the following example, the user clears all the Frame Relay port counters on the current card.

```
mpsm_node.5.MPSM155 [FR] .a > clrportcnts
```

clrppplnkcnt

Clear statistics for a PPP Link

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **clrppplnkcnt** command to clear statistics counters for a PPP link.

Syntax

clrppplnkcnt *<link>*

Syntax Description

<i>link</i>	Specifies the PPP link number for which to clear statistics.
Note	Enter the dsppplinks command to display all PPP links on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

dsppplnkcnt

Example

In the following example, the user clears statistics on PPP link 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > clrppplnkcnt 5
```

clrpppmuxcnt

Clear PPPMUX statistics for a bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **clrpppmuxcnt** command to clear PPPMUX statistics counters for an MLPPP bundle.

Syntax

clrpppmuxcnt *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MLPPP bundle for which to clear PPPMUX statistics.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: yes

State: active

Privilege: any

Related Commands

dsppppmuxcnt

Example

In the following example, the user clears PPPMUX statistics on bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > clrpppmuxcnt 5
```

clrsarcnt

Clear Segmentation and Reassembly Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clrsarcnt** command to clear the segmentation and reassembly (SAR) counters.

Syntax

clrsarcnt

Syntax Description

None.

Related Commands

dspsarcnt

Attributes

Log: yes

State: active, standby, init

Privilege: ANYUSER

Example

In the following example, the user clears the segmentation and reassembly (SAR) counters.

```
M8850_SF.10.MPSM155 [ATM] .a > clrsarcnt
```

clearscrn

Clear Screen

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **clearscrn** command to clear the control terminal screen. After this command runs, only the command line prompt appears on the screen.

Syntax

clearscrn

Related Commands

None

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user clears the screen.

```
mpsm_node.5.MPSM155 [FR] .a > clearscrn
```

After the user hits enter, the terminal displays only the current command line prompt, as shown in the following example:

```
mpsm_node.5.MPSM155 [FR] .a >
```

cnfabr

Configure ABR

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfabr** command to configure the VS/VD-specific parameters for an existing ABR connection. The connection must be of service type ABR (in the **addcon** command, *service type* = 10).

The cards support ABR virtual source and virtual destination (VS/VD). Therefore, it can generate resource management (RM) cells and turn them around.



Note

With ABR VS/VD, you can specify parameters but leave the VS/VD service disabled. You can later enable the service and thus activate the previously configured parameters. You can enable VS/VD at the PNNI port level by using the **cnfintfvsvd** command on the PXM.

Syntax

```
cnfabr <ifNum> <vpi <vci> [-icr <Initial cell rate>] [-adtf <ACR decr. factor>]
[-rdf <Rate decr. factor>] [-rif <Rate incr. factor>] [-nrm <Cells per fwd RM>]
[-trm <Time between fwd RMs>] [-cdf <cutoff decrease factor>] [-frtt <fix round trip delay>]
[-tbe <transient buffer exposure>]
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) of the available bit rate (ABR) channel to configure. Note Enter the dspscons command in the ATM context to display the interface number, VPI, and VCI for all active ATM channels.
<i>vpi</i>	Specifies the connection VPI.
<i>vci</i>	Specifies the connection VCI.
-icr	Initial Cell Rate (ICR) in cells per second. This is the rate at which the source should begin transmitting, and is also the rate at which the source should resume transmitting after an idle period. <ul style="list-style-type: none"> MPSM-T3E3-155 range: 10-104268 cells per second MPSM-16-T1E1 range: 10-36064 cells per second
-adtf	ACR Decrease Time Factor (ADTF). This is the time permitted to decrease the cell rate from the RM-cell rate to the Allowed Cell Rate (ACR) for normal traffic. The range is 1–1023 milliseconds.
-rdf	Rate Decrease Factor (RDF). This is the factor by which to decrease the Allowed Cell Rate (ACR), in the range 1-16. <i>RDF</i> equals 2 raised to the power [<i>Rate decr. factor</i> - 16], which is 1/32768 to 1.
-rif	Rate Increase Factor (RIF). This is the factor by which to increase the Allowed Cell Rate (ACR), in the range 1-16. <i>RIF</i> equals 2 raised to the power [<i>Rate incr. factor</i> - 16], which is 1/32768 to 1.
-nrm	Maximum number of cells that the source can send for each forward RM-cell, in the range 1-8. <i>Nrm</i> equals 2 raised to the power <i>Cells per fwd RM</i> , which is 2-256.

-trm	The maximum number of milliseconds for one RM-cell to travel from source to endpoint, in the range 1-8. <i>Trm</i> equals 100 times 2 raised to the power [<i>Time between fwd RMs</i> - 8], which equals 100×2^{-7} to 100 milliseconds.
-cdf	Cutoff Decrease Factor (CDF), which controls the decrease in Allowed Cell Rate (ACR) associated with Missing RM-cell count (CRM). <i>The range is</i> 1-8, where CDF equals 2 to the power [<i>cutoff decrease factor</i> - 8], which yields values of 1/64 to 1. CRM limits the number of forward RM-cells that may be sent in the absence of received backward RM-cells. CRM is an integer. Its size is implementation specific.
-frtt	Fixed Round-Trip Time (FRTT), which is the sum of the fixed delays plus the propagation delays from the source to the destination and back. The range is 0–16700000 seconds.
-tbe	Transient Buffer Exposure (TBE), which is the negotiated number of cells that the network would like to limit the source to sending during startup periods, before the first RM-cell returns. The range is 0–16,777,215 cells.

Related Commands

addcon, cnfabrtparmdft, dspabrtparmdft, cnfintfvsvd

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user configures the ABR connection 17 on VPI 44, VCI 55 for an ICR of 100 cells per second.

```
M8850_SF.10.MPSM155 [ATM] .a > cnfabr 17 44 55 -icr 100
Configuration successful
```

cnfapsln

Configure APS Line

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnfapsln** command to configure the APS parameters for a line (*working line*). Enter the **cnfapsln** command after creating the line using the **addapsln** command.

See the description for the **addapsln** command for a detailed explanation of Automatic Protection Switching (APS).

Syntax

```
cnfapsln -w <working line> -sf <SignalFaultBER> -sd <SignalDegradeBER> -wtr <Wait To Restore>
-dr <direction> -rv <revertive> -proto <protocol>
```



Note

1+1 Annex B operational mode is bi-directional, non-revertive, ITU protocol only.



Note

If the ArchMode configured by the **addapsln** command is 1+1–Annex B, only WTR (**-wtr**), SF BER (**-sf**), and SD BER (**-sd**) are configurable with the **cnfapsln** command.

Syntax Description

-w	Identifies the working line. Enter the slot number, bay number, and line number of the active line to configure, in the format: <i>slot.bay.line</i> Note Enter the dspapslns command to display the working line numbers for all lines configured for APS.
-sf	A number between 3 and 5 indicating the Signal Fault Bit Error Rate (BER), in negative powers of ten: <ul style="list-style-type: none"> • 3 = 10⁻³ (default) • 4 = 10⁻⁴ • 5 = 10⁻⁵
-sd	A negative power of 10 in the range 5–9 that indicates the Signal Degrade Bit Error Rate (BER): <ul style="list-style-type: none"> • 5 = 10⁻⁵ (default) • 6 = 10⁻⁶ • 7 = 10⁻⁷ • 8 = 10⁻⁸ • 9 = 10⁻⁹
-wtr	The Wait to Restore option configures the number of minutes to wait after the working line has become functional again, before switching back to the working line from the protection line. The range is 1–12. Default: 5

-dr	Specifies the traffic direction to switch: <ul style="list-style-type: none"> • 1 = unidirectional, only the affected path, either receiving or transmitting, is switched • 2 = bidirectional, both the receiving and transmitting paths are switched (default)
-rv	Enables revertive behavior: <ul style="list-style-type: none"> • 1 = non-revertive, do not switch the user traffic back to the working line from the protection line after the working line becomes functional again • 2 = revertive, switch the user traffic back to the working line from the protection line after the working line becomes functional again (default)
-proto	Specify either Telcordia or ITU protocol: <ul style="list-style-type: none"> • 1 = Bellcore-GR253 (default) • 2 = ITU

Related Commands

addapsln, delapsln, dspapsln, dspapslns, switchapsln, dspapsbkplane, dspbecnt

Attributes

Log: yes

State: active

Privilege: SUPER_GP

Example

In the example that follows, the user configures APS on an MPSM-T3E3-155 card with the following parameters:

- working line—1.1.1
- signal Fault BER— 10^{-3}
- signal Degrade BER— 10^{-5}
- wait to Restore— 5 minutes
- path switching direction—bi-directional
- revertive behavior—revertive enabled
- protocol—ITU

```
mipsm_node.1.MPSM155 [ATM] .a > cnfapsln -w 1.1.1 -sf 3 -sd 5 -wtr 5 -dr 2 -rv 2-proto 2
```

cnfatmlayer

Configure ATM Layer

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfatmlayer** command to configure payload scrambling on the specified line, path, or IMA group.



Note

The *NullCellHdr* and *NullCellPayload* of the ATM cell layer are not configurable because of hardware limitations.

Syntax

```
cnfatmlayer <line/path_id/ima_group> -sps <PayloadScramble>
```

Syntax Description

<i>line/path_id/ima_group</i>	Specifies the line, path, or IMA group for which you want to configure ATM parameters. The line or path must be configured for ATM service before you can configure the ATM layer.
-------------------------------	--

Note Enter the **dsplns**, **dsppaths**, or **dspimagrps** command in the ATM CLI context to display the lines, paths, or IMA groups configured on the current card.

-sps	Enables or disables payload scramble. <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-------------	---

Related Commands

dspatmlayercnt

Attributes

Log: no

State: active

Privilege: GROUP1

Example

In the following example, the user enables payload scrambling on IMA group 10.

```
mpsm_node.1.MPSM155 [ATM] .a > cnfatmlayer 10 1
```

cnfautolndiag

Configure Auto Line Diagnostics

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfautolndiag** command to enable or disable auto line diagnostics on the card.

Syntax

```
cnfautolndiag <enable | disable>
```

Syntax Description

enable or disable	A keyword that enables or disables auto line diagnostics on the card:
	<ul style="list-style-type: none">• 1 = enable• 2 = disable (default)

Related Commands

dspautolndiag

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user enables auto line diagnostics.

```
mpsm_node.1.MPSM155 [ATM] .a > cnfautolndiag 1
```

cnfautorestart

Configure Automatic Restart

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfautorestart** command to enable or disable the IMA group automatic restart feature for the card. To enable automatic restart for ports, enter the **cnfimagrps** command. This feature automatically restarts an IMA group if the group operation stops after one of the following service events:

- One or more lines placed in loopback at the near or far end
- One or more lines inadvertently moved to another switch
- The far end IMA group is deleted and re-added

Line changes can halt IMA group operation when the affected lines are the only operational lines in the IMA group.



Note

The **cnfautorestart <1|2>** command is identical to the **cnfimaparms -restart <1|2>** command.



Note

For the IMA automatic restart feature to work properly, the IMA group IDs (**addimagrp** command) at each end of the IMA connection must be different. If the IMA group IDs are the same, the card can not differentiate between lines that are connected to the remote switch and lines that are in loopback mode.

Syntax

cnfautorestart <1|2>

Syntax Description

1 2	Enables or disables the IMA automatic restart feature. 1 = Enable automatic restart 2 = Disable automatic restart.
------------	--

Related Commands

cnfimaparms, cnfimagrps, dspautorestart, dspimaparms

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user enables the IMA group automatic restart feature for the card.

```
M8830_CH.12.MPSM155 [ATM] .a > cnfautorestart 1
```

cnfbert

Configure Bit Error Rate Test

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfbert** command to configure the BERT (bit error rate test) session for a line, path, or port. The new configuration does not take effect if a BERT *test pattern* is already running. However, it will take effect if you stop and then start the test again.

The BERT test patterns range from 1–38 and are described in [Table 7-13](#). To determine the test patterns supported on the card, enter the **dspbertycap** command.

Table 7-13 BERT Test Patterns

No.	Test Pattern	Description
1	allZeros	all zeroes (..0000..)
2	allOnes	all ones (..1111..)
3	alternateOneZero	alternate ones and zeros (..1010..)
4	doubleAltOnesZeros	double alternate ones and zeros (..1100..)
5	oneIn4	a four bit pattern containing a single 1
6	oneIn8	an eight bit pattern containing a single 1
7	oneIn16	a sixteen bit pattern containing <i>n</i> ones where <i>n</i> equals 1–16
8	threeIn24	a 24 bit pattern which contains 3 ones
9	inbandLoopup	D4/SF Loopback activate
10	inbandLoopdown	D4/SF Loopback deactivate
11	twoE3MinusOne	23 – 1 (7 bits)
12	twoE4MinusOne	24 – 1 (15 bits)
13	twoE5MinusOne	25 – 1 (31 bits)
14	twoE6MinusOne	26 – 1 (63 bits)
15	twoE7MinusOne	27 – 1 (127 bits)
16	twoE7MinusOneFT1Loopup	27 – 1 (fractional T1 loop back activate)
17	twoE7MinusOneFT1Loopdown	27 – 1 (fractional T1 loop back deactivate)
18	twoE9MinusOne	29 – 1 (511 bits with a maximum of 8 non-inverted sequential zeros and 9 sequential ones)
19	twoE10MinusOne	the 210 – 1 (1023 bits)
20	twoE11MinusOne	211 – 1 (2047 bits with a maximum of 15 inverted sequential zeros)
21	twoE15MinusOne	215 – 1 (32767 bits with a maximum of 15 inverted sequential zeros)
22	twoE17MinusOne	217 – 1 (131071 bits)
23	twoE18MinusOne	218 – 1 (262144 bits)

Table 7-13 BERT Test Patterns (continued)

No.	Test Pattern	Description
24	twoE20MinusOne	220 – 1 (1048575 bits with a maximum of 19 non-inverted sequential zeros)
25	twoE20MinusOneQRSS	220 – 1 (1048575 bits with zero suppression: a quasi-random signal source)
26	twoE21MinusOne	221 – 1 (2097151 bits)
27	twoE22MinusOne	222 – 1 (4194303 bits)
28	twoE23MinusOne	223 – 1 (8388607 bits): the highest stress pseudo-random pattern with maximum of 23 inverted sequential zeros and 23 sequential ones
29	twoE25MinusOne	221 – 1 (33554431 bits)
30	twoE28MinusOne	228 – 1 (268435455 bits)
31	twoE29MinusOne	the highest stress pseudo random pattern with a maximum of 29 inverted sequential zeros
32	twoE31MinusOne	a maximum of 31 sequential zeros
33	dds1pattern	DDS1 pattern
34	dds2pattern	DDS2 pattern
35	dds3pattern	DDS3 pattern
36	dds4pattern	DDS4 pattern
37	dds5pattern	DDS5 pattern
38	userPattern	A User defined pattern. Note This option is not supported in Release 5.

Syntax

```
cnfbert <bertIfNum> [-tp <test pattern>] [-tpi <transmit pattern inverse>]
[-rpi <receive patten inverse>] [-eir <error insertion rate>] [-lpbk <loopbackCode>]
```

Syntax Description

bertIfNum Identifies the line, path, or port on which to configure a BERT session.

Note Enter the **dspberts** command in the to display the line, path, or port numbers that have BERT test activated in the current CLI context.

-tp The test pattern to configure. Range 1–38. See [Table 7-13](#).

Note Enter the **dspbertcap** command to display the supported loopback codes and their associated numbers for the line, path, or port.

-tpi Controls inversion of the transmit BERT pattern:

- 1 = Not inverted
- 2 = Inverted

-rpi	Controls inversion of the received BERT pattern: <ul style="list-style-type: none"> • 1 = Not inverted • 2 = Inverted
-eir	Inserts bit errors in the transmitted pattern at the following rates: <ul style="list-style-type: none"> • 1 = noError: no errors • 2=oneInTen: 1 bit error per 10 bits • 3 = oneInHundred: 1 bit error per 100 bits • 4 = oneInThousand: 1 bit error per 1000 bits • 5 = oneIn10Thousand: 1 bit error per 10000 bits • 6 = oneInHundredThousand: 1 bit error per 100000 bits • 7 = oneInMillion: 1 bit error per 1000000 bits • 8 = oneInTenMillion: 1 bit error per 10,000,000 bits
-lpbk	Specifies the loopback type, in the range from 1 through 18. Note Enter the dspbertycap command to display the supported loopback types and their associated numbers.

Related Commands

addbert, delbert, dspbert, dspbertcap, dspberts, dspbertstat, startbert, stopbert

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user configures the BERT test pattern 30 so that the received and transmitted patterns are inverted.

```
NodeB.6.MPSM155 [ATM] .a > cnfbert 1.1:7 -tp 30 -tpi 2 -rpi 2
```

cnfcdmode

Configure Card Mode

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfcdmode** command to specify the type of the lines in use on the back card. Enter the **dspcd** command to display the current backcard mode.



Note Use **cnfcdmode** only when the card is not provisioned.



Note The **cnfcdmode** command does not apply to the SFP-2-155 or the SMB-2-155-EL OC3 back cards.

Syntax

cnfcdmode <mode>

Syntax Description

mode Indicates the type of lines used on the back card.

MPSM-T3E3-155 modes (with T3/E3 backcard):

- 3 = T3
- 4 = E3

MPSM-16-T1E1 modes:

- 1 = T1
- 2 = E1 - MCC
- 3 = E1 - RBBN

Related Commands

dspcd, dspcds

Attributes

Log: yes State: active, standby Privilege: GROUP1

Example

In the following example, the user configures the backcard mode to E3.

```
M8850_NY.13.MPSM155 [ATM] .a > cnfcdmode 4
```

cnfcdsct

Configure Card-Level Service Class Template

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfcdsct** command to assign a service class template (SCT) at the card level. The template contains bandwidth and policing parameters.



Note

Policing parameters apply only at the port, so specifying SCT 1 or SCT 3 does not provide a policing function. (As this description states, Cisco provides SCTs 1 and 3 for the card.)



Note

Currently, the system does not support certain parameters in the service class templates (SCTs), so you can specify them through **addcon**, **cnfcon**, or Cisco WAN Manager. These parameters are (when applicable) PCR, SCR, and ICR.

Usage Guidelines

The **cnfcdsct** command is card-level because it applies to the card's interface to the backplane. (See **addport** for specifying an SCT for a port.) The following characteristics apply to **cnfcdsct**.

- A valid SCT file must exist on the PXM disk before you execute **cnfcdsct**. To display a list of SCT files on the disk, execute **cd** to get to the SCT directory, then execute **ls** to display the directory named MPSM155.
- You cannot change the SCT configuration if any ports, lines, or partitions are configured.
- To display the ID of the current SCT, use **dspscd** for the card-level SCT or **dspport** for a port-level SCT.
- To display the actual contents of a card-level SCT, enter the **dspscdsct** command. The current SCT is displayed next to the *Card SCT Id:* field.
- Until you specify an SCT, the MPSM-T3E3-155 has a default SCT of 0. The system uses SCT ID = 0 when:
 - The card is powered-up for the first time.
 - The card's database is rebuilt.
 - The card is rebooted and the user-specified SCT file for a particular port is corrupt or missing. In this situation, the default applies to only the affected port.

Cisco Systems provides SCT numbers 1, 2, 3, and 4. The high-level distinctions between these SCTs are as follows:

- SCT 1 is for high bandwidth ports (such as DS3, E3, and OC3 ports), and it contains policing parameters.
- SCT 2 is for high bandwidth ports, and it does not contain policing parameters.
- SCT 3 is for low bandwidth ports (such as DS1, E1, and DS0 ports), and it contains policing parameters.
- SCT 4 is for low bandwidth ports, and it does not contain policing parameters.

**Note**

You should use the provided SCTs or create new templates by using Cisco WAN Manager to modify the provided SCTs and save them with new IDs.

Syntax

cnfcdsct <*sctID*>

Syntax Description

sctID Number of the card-level SCT . The range is from 0 through 255.

Note To display a list of SCT files on the PXM disk, enter the **dspscts** command at the PXM card.

Related Commands

dspscts, dspcd, dspct

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user assigns card SCT 1 to the MPSM-T3E3-155 in slot 9. Before configuring the card, the user verifies the presence of card SCT 1 for the MPSM-T3E3-155 on the PXM disk.

```
M8850_SF.8.PXM.a > dspscts
```

```
-----
Card Type  ID    Major Minor Checksum  Status  Description
-----
MPSM155 PORT  00001 00001 00000 0xff192c05  valid  cisco :MPSM155_SCT.PORT.1.V1
MPSM155 CARD  00001 00001 00000 0x8ecc3c57  valid  cisco :MPSM155_SCT.CARD.1.V1
MPSM16T1E1 PORT  00003 00001 00000 0x3cb04789  valid  cisco :MPSM16T1E1_SCT.PORT.3.V1
MPSM16T1E1 CARD  00001 00001 00000 0x818c3c54  valid  cisco :MPSM16T1E1_SCT.CARD.1.V1
-----
```

```
M8850_SF.8.PXM.a > cc 9
```

```
(session redirected)
```

```
M8850_SF.9.MPSM155[FR].a > cnfcdsct 1
```

**Note**

The SCT file must reside on the PXM disk before you can configure it with the **cnfcdsct** command. If the specified SCT is not on the PXM disk, the **cnfcdsct** command fails and displays the following error message:

```
ERR:SCT file not present. Use tftp to load it on PXM disk
```

cnfchanstdabr

Configure Standard ABR Connection arguments ABR

Service Context— Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfchanstdabr** command to configure the standard available bit rate (ABR) arguments, such as cell rates and times, for the specified logical interface (ifNum).

Syntax

```
cnfchanstdabr <ifNum> <dcli> [-mcr <Minimum Cell Rate>] [-pcr <Peak Cell Rate>]
[-icr <Initial Cell Rate>] [-rif <Rate Increase Factor>] [-rdf <Rate Decrease Factor>]
[-nrm <Cells per forward RM>] [-trm <Time betwn forward RM>] [-tbe <Transient Buffer Exposure>]
[-frtt <Fixed Round-Trip Time>] [-adtf <ACR DecreaseTime Factor>][-cdf <Cutoff Decrease Factor>]
```

Syntax Description

<i>ifNum</i>	Interface number (port number) of the available bit rate (ABR) channel to configure. Note Enter the dspscons command in the Frame Relay CLI context to display the port and DLCI numbers for all active channels.
<i>dcli</i>	Data-link Connection Identifier.
-mcr	Minimum Cell Rate (MCR) <ul style="list-style-type: none"> MPSM-T3E3-155 range: 10–165787 cells per second MPSM-16-T1E1 range: 10-36064 cells per second
-pcr	Peak cell rate (PCR) <ul style="list-style-type: none"> MPSM-T3E3-155 range: 10–165787 cells per second MPSM-16-T1E1 range: 10-36064 cells per second
-icr	Initial Cell Rate (ICR) in cells per second. This is the rate at which the source should begin transmitting, and is also the rate at which the source should resume transmitting after an idle period. <ul style="list-style-type: none"> MPSM-T3E3-155 range: 10–165787 cells per second MPSM-16-T1E1 range: 10-36064 cells per second
-rif	Rate Increase Factor (RIF). This is the factor by which to increase the Allowed Cell Rate (ACR). <i>RIF</i> is a power of 2 in the range 32768 to 1.
-rdf	Rate Decrease Factor (RDF). This is the factor by which to decrease the Allowed Cell Rate (ACR). <i>RIF</i> is a power of 2 in the range 32768 to 1.
-nrm	Maximum number of cells that the source can send for each forward RM-cell. <i>Nrm</i> is a power of 2 in the range 2–256.

-trm	The maximum number of milliseconds for one RM-cell to travel from source to endpoint. <i>Trm</i> is one of the following values: <ul style="list-style-type: none"> • 6 • 12 • 25 • 50 • 100 Any other input value is rounded off to next higher supported value.
-tbe	Transient Buffer Exposure (TBE). This is the negotiated number of cells that the network would like to limit the source to sending during startup periods, before the first RM-cell returns. The range is 0–16,777,215 cells.
-frtt	Fixed Round-Trip Time (FRTT). This is the sum of the fixed delays plus the propagation delays from the source to the destination and back. The range is 0–16700 microseconds.
-adtf	ACR Decrease Time Factor (ADTF). This is the time permitted to decrease the cell rate from the RM-cell rate to the Allowed Cell Rate (ACR) for normal traffic. The range is 10–1023 milliseconds.
-cdf	Cutoff Decrease Factor (CDF). This controls the decrease in Allowed Cell Rate (ACR) associated with Missing RM-cell count (CRM). <i>CDF</i> can be either of the following: <ul style="list-style-type: none"> • Zero • Power of 2 in the range 1/64 to 1 CRM limits the number of forward RM-cells that may be sent in the absence of received backward RM-cells. CRM is an integer. Its size is implementation specific.

Related Commands

dspchanstdabr

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user configures DLCI 1000 on port 1 so that it has an MCR and PCR of 1000.

```
.M8830_CH.12.MPSM155[FR].a > cnfchanstdabr 1 1000 -mcr 1000 -pcr 1000
Configuration successful
```

cnfclictx

Configure CLI Context

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfclictx** command to set the default service context for the current card to either ATM or Frame Relay (FR). The CLI context assumes the default context when you first **cc** to the card. To display the default context, enter the **dspclictx** command. For more information, see the “[Setting the Service Context on MPSM-T3E3-155 and MPSM-16-T1E1 Cards](#)” section in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#)



Note

Any change in the default service context on the Active MPSM-T3E3-155 line card gets reflected on the Standby MPSM-T3E3-155 card.

Syntax

```
cnfclictx <atm | fr>
```

Syntax Description

atm fr	Sets the default service context of the card to be ATM or Frame Relay. Enter atm or fr to set the context to ATM or Frame Relay, respectively.
-----------------	--

Related Commands

setctx, **dspclictx**

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user sets the default service context for the MPSM-T3E3-155 in slot 12 to ATM.

Note that the switch prompt does not reflect the change to ATM until the user changes to the PXM card and then changes back to the MPSM-T3E3-155 in slot 12.

```
M8830_CH.12.MPSM155 [FR] .a > cnfclictx atm
```

```
M8830_CH.12.MPSM155 [FR] .a > cc 1
```

```
(session redirected)
```

```
M8830_CH.1.PXM.a > cc 12
```

```
(session redirected)
```

```
M8830_CH.12.MPSM155 [ATM] .a >
```

cnfcon

Configure Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfcon** command to modify the bandwidth, policing, and routing parameters of an existing endpoint. This command applies to only an SPVC or SPVP. For VS/VD-specific parameters for an ABR connection, use **cnfabr**.

The command parameters consist of:

- A logical port, VPI, and VCI to identify the connection
- Bandwidth parameters for the local (master) end then the remote (slave) end
- Policing parameters for the connection as a whole

After you specify the mandatory connection identifier, all other parameters are optional.

Usage Guidelines

The following sections discuss the application of certain **cnfcon** parameters.



Note

On DAX connections, using **cnfcon** at the slave end has no effect. For DAX connections, use **cnfcon** at the master end only, and the parameters will take effect on the controller as well.



Note

Frame Relay does not support P2MP connections.

Traffic Parameters

Traffic parameters such as PCR, SCR, MBS are entered at both the master and slave endpoints for both the forward and reverse directions. For PCR in the **cnfcon** command, however, specify *lpcr* and *rpcr* at the master endpoint only (the connection manager ignores PCR entries at the slave end for the **cnfcon** command). Be sure that the value entered as “local” on one end is equal to the value entered as “remote” on the other end. For example, the *lpcr* on the slave endpoint should be same as the *rpcr* on the master endpoint and vice versa when you provision the connection at the other end. If you modify traffic parameters after creating an SPVC, you just modify them at the master endpoint or at the slave endpoint (if there is only one slave endpoint).

Traffic parameters such as CDV, CTD are entered at both the master and slave endpoints for both the forward and reverse directions. However, the values of these parameters entered at the slave end are ignored during call setup. Therefore, you can specify the *lcdv*, *rcdv*, *lctd*, and *rctd* options at the master end only.

Routing Parameters

Routing parameters, such as maximum route cost (**-mc maxcost**) or the routing priority (**-rtngprio routingPriority**) need to be entered at the master endpoint only. The values of the parameters entered at the slave end are ignored during call setup.

You can assign a priority at the master end of an SPVC or SPVP. The PNNI controller routes higher priority connections before lower priority connections. The user-configurable range for a connection is, in descending order of priority, 1–15. The default is 8. See **cnfpri-routing** for a detailed description of the Priority Routing feature. Also, the **cnfpri-routing** command lets you configure groups of bandwidth so that the order of routing also reflects the bandwidth requirements of the connection.

If you use the **cnfcon** command to modify *only* the routing priority of a connection, PNNI does not immediately re-route the connection. Nevertheless, if you run **dsppcon** for such a changed connection at the master endpoint, it immediately shows the changed priority even before PNNI re-routes the connection. You can also use the **dsppncon** command to display the priority of the SVC portion that is associated with master and slave endpoints. Note that the **dsppncon** command shows the new priority only after PNNI re-routes the connection.

Frame Discard

For *frame discard* (see **-frame** option), specify this parameter for VCCs only and only at the master endpoint. This parameter has no meaning at the slave end. Both early packet discard (EPD) and partial packet discard (PPD) are supported. If you do not specify *frame discard* here, the connection manager uses the frame discard flag in the operational SCT. The EPD on the QE depends on the thresholds in the SCT for the port. If the cells arriving in the CoSB exceed the threshold and are dropped, the whole frame is dropped.

Local-Only Parameters

The parameters CDVT, stats enable, *cc* enable (specified using **-cdvt**, **-stat**, **-cc**) are significant only at the endpoint where you enter them. Therefore, they can be different at each end of the connection.

Syntax (ATM Service Context)

```
cnfcon <ifNum> <vpi> <vci>
[-lpcr <local to remote PCR>] [-rpcr <remote to local PCR>]
[-lscr <local to remote SCR>] [-rscr <remote to local SCR>]
[-lmbs <local to remote MBS>] [-rmbs <remote to local MBS>]
[-lcdv <local to remote maxCDV>] [-rcdv <remote to local maxCDV>]
[-lctd <local to remote maxCTD>] [-rctd <remote to local maxCTD>] [-cc <OAM CC Cnfg>]
[-lmcr <local to remote MCR>] [-rmcr <remote to local MCR>]
[-cdvt <local CDVT>] [-cc <OAM CC Cnfg>] [-stat <Stats Cnfg>]
[-frame <frame discard>] [-mc <Max Cost>] [-segep <OAM segment endpoint>]
[-lputil <local -> remote PUtil>] [-rputil <remote -> local PUtil>] [-rtngprio <routingPriority>]
[-prefrte <preferredRouteId>] [-directrte <directRoute>]
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the connection to configure. Note Enter the dsppcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM ports.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) for the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) for the connection.

<i>service type</i>	<p>Specifies the ATM service type:</p> <ul style="list-style-type: none"> • 1 = CBR1 (Constant Bit Rate 1) • 2 = VBR1RT (Variable Bit Rate 1, Real Time) • 3 = VBR2RT (Variable Bit Rate 2, Real Time) • 4 = VBR3RT (Variable Bit Rate 3, Real Time) • 5 = VBR1NRT (Variable Bit Rate 1, Non-Real Time) • 6 = VBR2NRT (Variable Bit Rate 2, Non-Real Time) • 7 = VBR3NRT (Variable Bit Rate 3, Non-Real Time) • 8 = UBR1 (Unspecified Bit Rate 1) • 9 = UBR2 (Unspecified Bit Rate 2) • 10 = ABRSTD (Standard ABR—see cnfabr for VS/VD-specific parameters) • 11 = CBR2 (Constant Bit Rate 2) • 12 = CBR3 (Constant Bit Rate 3) <p>Note CBR2 and CBR3 will be obsoleted in the future. Use CBR1 instead.</p> <p>Note For ATM-FR interworking, the service mapping is.</p> <table style="margin-left: 2em;"> <thead> <tr> <th>FR</th> <th>ATM</th> </tr> </thead> <tbody> <tr> <td>highpriority</td> <td>cbr1</td> </tr> <tr> <td>rtVBR</td> <td>vbr3rt</td> </tr> <tr> <td>rtVBR</td> <td>vbr3nrt</td> </tr> <tr> <td>uBR</td> <td>ubr</td> </tr> <tr> <td>stdABR</td> <td>stdabr</td> </tr> </tbody> </table>	FR	ATM	highpriority	cbr1	rtVBR	vbr3rt	rtVBR	vbr3nrt	uBR	ubr	stdABR	stdabr
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<i>mastership</i>	<p>Defines the endpoint as master or slave:</p> <ul style="list-style-type: none"> • 1 = master • 2 = slave 												
-lpcr	<p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps 												
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-lscr	<p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps 												

-rscr	<p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
-lmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the local to remote direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0-5000000 cells</p>
-rmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0-5000000 cells</p>
-lcdv	<p>Specifies the Local Cell Delay Variation, which limits the peak to peak cell delay variation from the local endpoint to the remote endpoint, in the range 1–16777215 microseconds.</p>
-rcdv	<p>Specifies the Remote Cell Delay Variation, which limits the peak to peak cell delay variation from the remote endpoint to the local endpoint, in the range 1–16777215 microseconds.</p>
-lctd	<p>Specifies the Local Cell Transfer Delay (CTD), which limits the CTD from a local endpoint to a remote endpoint, in the ranges 0–65535 microseconds.</p>
-rctd	<p>Specifies the Remote Cell Transfer Delay (CTD), which limits the CTD from the remote endpoint to the local endpoint, in the range 0–65535 microseconds.</p>
-lmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-104268 cps • MPSM-16-T1E1 range: 10-36064 cps
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-cdvt	<p>Specifies the Local Cell Delay Variation Tolerance (CDVT) from a local endpoint to a remote endpoint, in the range 1–5000000 microseconds. Cell Delay Variation Tolerance controls the time scale over which the PCR is policed.</p> <p>Note No <i>remote</i> CDVT is necessary.</p>



-cc	Enables or disables the Operations, Administration, and Maintenance continuity check (OAM CC):
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
	Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.
	To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.
	<p>Note A non-zero AIS delay timer affects CC functionality (if enabled) during the intentional re-routing of a connection following the optrte or cnfrteopt command at the PXM card. The cnfaisdelaytimer command at the PXM card controls the AIS-delay feature. If the delay timer is configured and the connection is groomed, the switch turns off CC until the connection is re-routed.</p>
-stat	Enables or disables connection statistics collection for the Cisco WAN Manager tool:
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
	<p>Note Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p>
-frame	Enables or disables frame discard for this connection. You can use this option only at the master endpoint of a connection.
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
-mc	Specifies the Maximum Cost (<i>maxcost</i>), which creates a priority for the connection route. The switch can select a route if the cost does not exceed this value. If you do not specify <i>maxcost</i> , the connection has the highest routing priority by default. Use this parameter to lower the routing priority of a connection.
	The following values are valid:
	<ul style="list-style-type: none"> • 0: Use the <i>optimal</i> (or least expensive) path • 1–4294967295: Use the path if the total cost for all links does not exceed this value. Higher numbers have higher priorities.
	<p>Note Although <i>maxcost</i> applies to an individual connection, routing costs primarily depend on a cost-per-link that you specify at every PNNI logical port in the network.</p>
-segep	Enables or disables an OAM segment endpoint:
	<p>1 = enable</p> <p>0 = disable</p>
-lputil	Specifies the Local Percentage Utilization, in the range 1-100 percent.
-rputil	Specifies the Remote Percentage Utilization, in the range 1-100 percent.

<i>service type</i>	<p>Specifies the ATM service type:</p> <ul style="list-style-type: none"> • 1 = CBR1 (Constant Bit Rate 1) • 2 = VBR1RT (Variable Bit Rate 1, Real Time) • 3 = VBR2RT (Variable Bit Rate 2, Real Time) • 4 = VBR3RT (Variable Bit Rate 3, Real Time) • 5 = VBR1NRT (Variable Bit Rate 1, Non-Real Time) • 6 = VBR2NRT (Variable Bit Rate 2, Non-Real Time) • 7 = VBR3NRT (Variable Bit Rate 3, Non-Real Time) • 8 = UBR1 (Unspecified Bit Rate 1) • 9 = UBR2 (Unspecified Bit Rate 2) • 10 = ABRSTD (Standard ABR—see cnfabr for VS/VD-specific parameters) • 11 = CBR2 (Constant Bit Rate 2) • 12 = CBR3 (Constant Bit Rate 3) <p>Note CBR2 and CBR3 will be obsoleted in the future. Use CBR1 instead.</p> <p>Note For ATM-FR interworking, the service mapping is.</p> <table border="0" style="margin-left: 20px;"> <tr> <td>FR</td> <td>ATM</td> </tr> <tr> <td>highpriority</td> <td>cbr1</td> </tr> <tr> <td>rtVBR</td> <td>vbr3rt</td> </tr> <tr> <td>rtVBR</td> <td>vbr3nrt</td> </tr> <tr> <td>uBR</td> <td>ubr</td> </tr> <tr> <td>stdABR</td> <td>stdabr</td> </tr> </table>	FR	ATM	highpriority	cbr1	rtVBR	vbr3rt	rtVBR	vbr3nrt	uBR	ubr	stdABR	stdabr
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-rmbs	Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range: 0-5000000 cells
-lcdv	Specifies the Local Cell Delay Variation, which limits the peak to peak cell delay variation from the local endpoint to the remote endpoint, in the range 1–16777215 microseconds.
-rcdv	Specifies the Remote Cell Delay Variation, which limits the peak to peak cell delay variation from the remote endpoint to the local endpoint, in the range 1–16777215 microseconds.
-lctd	Specifies the Local Cell Transfer Delay (CTD), which limits the CTD from a local endpoint to a remote endpoint, in the ranges 0–65535 microseconds.
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-cdvt	Specifies the Local Cell Delay Variation Tolerance (CDVT) from a local endpoint to a remote endpoint, in the range 1–5000000 microseconds. Cell Delay Variation Tolerance controls the time scale over which the PCR is policed. Note No <i>remote</i> CDVT is necessary.

-cc	Enables or disables the Operations, Administration, and Maintenance continuity check (OAM CC):
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
	Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.
	To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.
	<p>Note A non-zero AIS delay timer affects CC functionality (if enabled) during the intentional re-routing of a connection following the optrte or cnfrteopt command at the PXM card. The cnfaisdelaytimer command at the PXM card controls the AIS-delay feature. If the delay timer is configured and the connection is groomed, the switch turns off CC until the connection is re-routed.</p>
-stat	Enables or disables connection statistics collection for the Cisco WAN Manager tool:
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
	<p>Note Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p>
-frame	Enables or disables frame discard for this connection. You can use this option only at the master endpoint of a connection.
	<ul style="list-style-type: none"> • 1 = enable • 0 = disable
-mc	Specifies the Maximum Cost (<i>maxcost</i>), which creates a priority for the connection route. The switch can select a route if the cost does not exceed this value. If you do not specify <i>maxcost</i> , the connection has the highest routing priority by default. Use this parameter to lower the routing priority of a connection.
	The following values are valid:
	<ul style="list-style-type: none"> • 0: Use the <i>optimal</i> (or least expensive) path • 1–4294967295: Use the path if the total cost for all links does not exceed this value. Higher numbers have higher priorities.
	<p>Note Although <i>maxcost</i> applies to an individual connection, routing costs primarily depend on a cost-per-link that you specify at every PNNI logical port in the network.</p>
-segep	Enables or disables an OAM segment endpoint:
	<p>1 = enable</p> <p>0 = disable</p>
-lputil	Specifies the Local Percentage Utilization, in the range 1-100 percent.
-rputil	Specifies the Remote Percentage Utilization, in the range 1-100 percent.

-slavepersflag	<p>Controls whether the endpoint is persistent or non-persistent. Enter a number to indicate the persistency as follows:</p> <ul style="list-style-type: none"> • 0 = persistent • 1 = non-persistent
-rtngprio	Specifies the routing priority of this connection, in the range 1–15.
-prefrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Use the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route • 1-65535: The preferred route id
	
Note	<p>Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Enter the dspscons [-rteid <pref rte id>] command at the PXM card to display all connections associated with a route.</p>
	
Note	<p>An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p>
-intvsvd	<p>Enables or disables VS/VD on the internal loop:</p> <ul style="list-style-type: none"> • 1 = Off • 2 = On • 3 = Unspecified: Use the VS/VD specification in the SCT file. <p>The cnfintfvsvd command enables VS/VD at the PNNI port level.</p>
-extvsvd	<p>Enables or disables VS/VD on the external loop:</p> <ul style="list-style-type: none"> • 1 = Off • 2 = On • 3 = Unspecified: Use the VS/VD specification in the SCT file. <p>The cnfintfvsvd command enables VS/VD at the PNNI port level.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route)

Syntax (Frame Relay Service Context)

```

cnfcon <ifNum> <dldci>
[-cir <Committed Information Rate>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtngprio <Routing Priority>] [-mc <Max Cost>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-rmbs <remote MBS>] [-cc <OAM CC Cnfg>]
[-stat <Stats Cnfg>] [-upc <UPC Cnfg>]
[-prefrte <routeId>] [-directrte {yes/no}]



```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Interface number (port number) of the connection to configure. Note Enter the dspscons command in the Frame Relay context to display the port number, and DLCI for all active ATM ports.
<i>dldci</i>	Specifies the Data-Link Connection Identifier.
-cir	Specifies the CIR for the connection. <ul style="list-style-type: none"> MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps. MPSM-16-T1E1 range: 0-1984000 bps.
-eir	Specifies the excess information rate for the connection. <ul style="list-style-type: none"> MPSM-T3E3-155 range—T3: 0-44209688, E3_G832: 0-33920000, and E3_G751: 0-33831000 bps. MPSM-16-T1E1 range: 0-1984000 bps.
-bc	Specifies the Burst Commit size for the connection. Range: 0-2097151 bytes
-be	Specifies the Burst Excess size for the connection. Range: 0-2097151 bytes
-detag	Enables or disables Discard Enable Tagging on the connection. This parameter enables or disables tagging of the DE bit on ingress frames as the result of the policing mechanism. Enter a number to enable or disable DE Tagging as follows: <ul style="list-style-type: none"> 1 = enable 2 = disable
-igde	Enables or disables a connection's response to incoming Discard Enable tags. Enter a number to ignore (disable) or accept (enable) incoming DE tags as follows: <ul style="list-style-type: none"> 1 = enable 2 = disable

-fecnmap	<p>Specifies the mapping between FECN and EFCI for this connection. Enter a number to set the configuration of the FECN map as follows:</p> <ul style="list-style-type: none"> • 1 = mapEFCI • 2 = setEFCIzero
-demap	<p>Specifies the mapping between DE and CLP for this connection. Enter a number to set the DE to CLP mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapCLP • 2 = setCLPzero • 3 = setCLPone
-clpmap	<p>Specifies the mapping between CLP and DE for this connection. Enter a number to set the CLP to DE mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapDE • 2 = setDEzero • 3 = setDEone • 4 = ignoreCLP
-eqsel	<p>Selects the Egress Queue for this connection. Enter a number to indicate one of the following options:</p> <ul style="list-style-type: none"> • 1 = highPriority • 2 = lowPriority • 3 = notSupported
-ingut	<p>Specifies the Ingress Percent Utilization for this connection. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p>
-egut	<p>Specifies Egress Percent Utilization for this connections. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p>
-egrat	<p>Specifies the Egress Service Rate. This value is used for CAC to determine if the port can support the connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 2400-44209688 bps • MPSM-16-T1E1 range: 2400 and 1984000 bps
-rtngprio	<p>Specifies the Routing Priority for this connections, in the range 1-15.</p>
-mc	<p>Specifies the Maximum Cost (<i>maxcost</i>), which creates a priority for the connection route. The switch can select a route if the cost does not exceed this value. If you do not specify <i>maxcost</i>, the connection has the highest routing priority by default. Use this parameter to lower the routing priority of a connection.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Use the <i>optimal</i> (or least expensive) path • 1–4294967295: Use the path if the total cost for all links does not exceed this value. <p>Note Although <i>maxcost</i> applies to an individual connection, routing costs primarily depend on a cost-per-link that you specify at every PNNI logical port in the network.</p>

-lpcr	<p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rpcr	<p>Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-lscr	<p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rscr	<p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-lmcrr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rmcrr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction.</p> <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 10-165787 cps • MPSM-16-T1E1 range: 10-36064 cps
-rmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range 0-5000000 cells</p>
-cc	<p>Operations, administration, and maintenance continuity check (OAM CC):</p> <ul style="list-style-type: none"> • 1 = enable • 0 = disable <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p>

-stat	<p>Enables or disables connection statistics collection for the Cisco WAN Manager tool:</p> <ul style="list-style-type: none"> • 1 = enable • 0 = disable <p>Note Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p>
-upc	<p>Enables or disables UPC configuration on the connection. Enter a number to enable/disable UPC configuration on the connection, as follows:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-prefrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Use the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route • 1-65535: The preferred route id
	<p>Note Before you delete the route, disassociate all connections from the route; otherwise, a dangling preferred route path remains. Enter the dspscons [-rteid <pref rte id>] command at the PXM card to display all connections associated with a route.</p>
	<p>Note An SPVC can be associated with one preferred route. For an XPVC, you can associate the preferred route with only the SPVC portion of the XPVC.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route)

Related Commands

addcon, delcon, dspcon, dspscons, dspsconstats

Attributes

Log: yes

State: active

Privilege: GROUP1

Syntax (PPP Service Context)

```

cnfcon <ifNum> <dldci>
[-cir <Committed Information Rate>]
[-eir <zeroCirEir>] [-bc <Burst Commit>] [-be <Burst Excess>]
[-detag <DE Tagging Enable>] [-igde <Ignore Incoming DE>]
[-fecnmap <FECN map>] [-demap <DE to CLP map>]
[-clpmap <CLP to DE map>] [-eqsel <Egress Q Select>]
[-ingut <Ingress Perc Util>] [-egut <Egress Perc Util>]
[-egrat <Egress Service Rate>]
[-rtngprio <Routing Priority>] [-mc <Max Cost>]
[-lpcr <local-remote PCR>] [-rpcr <remote-local PCR>]
[-lscr <local-remote SCR>] [-rscr <remote-local SCR>]
[-lmcr <local-remote MCR>] [-rmcr <remote-local MCR>]
[-rmbs <remote MBS>] [-cc <OAM CC Cnfg>]
[-stat <Stats Cnfg>] [-upc <UPC Cnfg>]
[-prefrte <routeId>] [-directrte {yes/no}]

```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (bundle number) of the bundle to configure. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1-16 <p>Note Enter the dspscons command to display the bundle number and DLCI for all active MLPPP bundles.</p>
<i>dldci</i>	Specifies the Data-Link Connection Identifier. Use 1000 for RPM-XF connections.
-cir	Specifies the CIR for the connection. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 0-1984000 bps.
-eir	Specifies the excess information rate for the connection. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 0-1984000 bps. <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-bc	Specifies the Burst Commit size for the connection. Range: 0-2097151 bytes The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300. <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-be	Specifies the Burst Excess size for the connection. Range: 0-2097151 bytes The default Frame Relay value is 5100, and the default Frame Forwarding value is 10300. <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-detag	Enables or disables Discard Enable Tagging on the connection. This parameter enables or disables tagging of the DE bit on ingress frames as the result of the policing mechanism. Enter a number to enable or disable DE Tagging as follows: <ul style="list-style-type: none"> 1 = enable 2 = disable <p>Note This parameter does not apply to connections to the RPM-XF.</p>

-igde	<p>Enables or disables a connection's response to incoming Discard Enable tags. Enter a number to ignore (disable) or accept (enable) incoming DE tags as follows:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-fecnmap	<p>Specifies the mapping between FECN and EFCI for this connection. Enter a number to set the configuration of the FECN map as follows:</p> <ul style="list-style-type: none"> • 1 = mapEFCI • 2 = setEFCIzero <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-demap	<p>Specifies the mapping between DE and CLP for this connection. Enter a number to set the DE to CLP mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapCLP (default) • 2 = setCLPzero • 3 = setCLPone <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-clpmap	<p>Specifies the mapping between CLP and DE for this connection. Enter a number to set the CLP to DE mapping, as follows:</p> <ul style="list-style-type: none"> • 1 = mapDE (default) • 2 = setDEzero • 3 = setDEone • 4 = ignoreCLP <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-eqsel	<p>Selects the Egress Queue for this connection. Enter a number to indicate one of the following options:</p> <ul style="list-style-type: none"> • 1 = highPriority • 2 = lowPriority • 3 = notSupported <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-ingut	<p>Specifies the Ingress Percent Utilization for this connection. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p> <p>Note This parameter is fixed at 100 percent for connections to the RPM-XF.</p>
-egut	<p>Specifies Egress Percent Utilization for this connections. This value controls the bandwidth allocated for the connection and allows you to oversubscribe the network resources. Range: 1-100 percent</p> <p>Note This parameter is fixed at 100 percent for connections to the RPM-XF.</p>
-egrat	<p>Specifies the Egress Service Rate. This value is used for CAC to determine if the port can support the connection.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 2400 and 1984000 bps <p>Note This parameter does not apply to connections to the RPM-XF.</p>

-rtngprio	<p>Specifies the Routing Priority for this connections, in the range 1-15.</p> <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-mc	<p>Specifies the Maximum Cost (<i>maxcost</i>), which creates a priority for the connection route. The switch can select a route if the cost does not exceed this value. If you do not specify <i>maxcost</i>, the connection has the highest routing priority by default. Use this parameter to lower the routing priority of a connection.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Use the <i>optimal</i> (or least expensive) path • 1–4294967295: Use the path if the total cost for all links does not exceed this value. <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-lpcr	<p>Specifies the Peak Cell Rate for this connection in the local to remote direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-rpcr	<p>Specifies the Peak Cell Rate for this connection in the remote to local direction. The PCR of the local and remote endpoints must match to successfully create a connection.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-lscr	<p>Specifies the Sustainable Cell Rate for this connection in the local to remote direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-rscr	<p>Specifies the Sustainable Cell Rate for this connection in the remote to local direction. The SCR of the local and remote endpoints must match for variable bit rate connections.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-lmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the local to remote direction.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-rmcr	<p>Specifies the Minimum Cell Rate for available bit rate connections in the remote to local direction.</p> <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 10-36064 cps <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-rmbs	<p>Specifies the Maximum Burst Size for variable bit rate connections in the remote to local direction. MBS is the maximum number of cells that can burst at the PCR and still be compliant. Range 0-5000000 cells</p> <p>Note This parameter does not apply to connections to the RPM-XF.</p>

-cc	<p>Operations, administration, and maintenance continuity check (OAM CC):</p> <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Continuity checking invokes a round trip of an OAM cell simply to confirm that both directions of the connection are intact.</p> <p>To provision continuity checking, enable this function at both ends of the connection; otherwise, a connection alarm results. When you add a connection and include this parameter, the connection goes into alarm until both ends of the connection are added.</p> <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-stat	<p>Enables or disables connection statistics collection for the Cisco WAN Manager tool:</p> <ul style="list-style-type: none"> • 1 = enable • 0 = disable (default) <p>Note Statistics collection has an impact, which may not be significant, on the real-time response, especially for SVCs (which can be affected even though you do not add SVCs). Therefore, you should enable statistics collection for only the subset of connections that really warrant such a feature.</p> <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-upc	<p>Enables or disables UPC configuration on the connection. Enter a number to enable/disable UPC configuration on the connection, as follows:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-prefertrte	<p>This option associates a preferred route to the connection. Use this parameter at the master endpoint only. Be sure the route exists before you associate it with the connection because the system does not check it. Enter the dspprefs command at the PXM card to display preferred routes.</p> <p>The following values are valid:</p> <ul style="list-style-type: none"> • 0: Disassociate a connection from a route (default) • 1-65535: The preferred route id <p>Note This parameter does not apply to connections to the RPM-XF.</p>
-directrte	<p>Enables or disables a direct route for this connection. When enabled (yes), the preferred route is the only permissible route for this connection. Should the directed preferred route be unavailable, the connection fails. When disabled (no), the connection tries another alternate route if the preferred route is unavailable.</p> <p>The values are as follows:</p> <ul style="list-style-type: none"> • 1 = yes (make the preferred route required) • 0 = no (do not require the connection to take the preferred route) <p>Note This parameter does not apply to connections to the RPM-XF.</p>

Attributes

Log: yes State: active Privilege: any

Example (ATM)

In the following example, the user enables OAM CC in the connection with a VPI and VCI of 10 40 on interface 4.

```
M8850_NY.13.MPSM155[ATM].a > cnfcon 4 10 40 -cc 1
Warning: Changing connection parameters will result in a momentary loss of traf.
Do you want to proceed (Yes/No)? y
Configuration successful
```

In the following example, the user assigns a routing priority of 3 to the connection with a VPI and VCI of 100 on interface number 4, and then checks the result with the **dsppcon** command.

```
M8850_NY.13.MPSM155[ATM].a > cnfcon 4 100 100 -rtngprio 3
Warning: Changing connection parameters will result in a momentary loss of traf.
Do you want to proceed (Yes/No)? y
Configuration successful
```

```
M8850_NY.13.MPSM155[ATM].a > dsppcon 4 100 100
-----
Local      :          NSAP Address                vpi      vci
(M)        4700918100000000036B5E31B30000010D180400    100      100
Remote    :          NSAP Address                vpi      vci
(s)        4700918100000000001A5389430000010C180400      0
-----
Conn. Type :          VCC                        Admn Status :      ADMN-UP
Service Type :          cbr1                    Oper Status  :      FAIL
Controller  :              2                    Record #    :           0
SlavePersist :          YEA                      Cast-type   :          N/A
-----
Local PCR   :              50                    Remote PCR  :           50
Local SCR   :              N/A                    Remote SCR  :           N/A
Local CDV   :              N/A                    Remote CDV  :           N/A
Local CTD   :              N/A                    Remote CTD  :           N/A
Local MBS   :              N/A                    Remote MBS  :           N/A
Max Cost    :              N/A                    Frame discard:         N/A
Local CDVT  :          250000                    OAM segment :      ENABLED
Local PctUtil :          100                      Rmt PctUtil :           100
Priority     :              3
Pref Rte Id :              N/A                    Directed route:         N/A
-----
Type <CR> to continue, Q<CR> to stop:
OAM CC Config :          ENABLED                    Statistics   :      DISABLED
-----
Loopback Type : No Lpbk | Dir: N/A | Status: No Lpbk | RTD:      0us
-----
Port side Tx :          AIS                        Swth side Tx :      normal
Port side Rx :          normal                    Swth side Rx :      normal
-----
I-AIS/RDI   E-AIS/RDI   CONDITIONED   CCFAIL   IfFail   Mismatch   LMI-ABIT
NO           NO           YES           NO       NO       NO         NO
-----
```

Example (Frame Relay)

In the following example, the user sets the CIR to 10,000 bps on the connection with a DLCI of 10 40 on interface 4.

```
M8850_NY.13.MPSM155[FR].a >cnfcon 4 1040 -cir 10000
Warning: Changing connection parameters will result in a momentary loss of traf.
Do you want to proceed (Yes/No)? y
Configuration successful
```

Example (PPP Service Context)

In the following example, the user modifies a connection on bundle 1 with a DLCI of 1000.

```
U4.5.MPSM16T1E1PPP[FR].a > cnfcon 1 1000 -cir 123456
Warning: Changing connection parameters will result in a momentary loss of traffic.
Warning: Changing routing parameters will not take effect on the slave endpoint of a DAX
connection.
Do you want to proceed (Yes/No)? y
Configuration successful
```

```
U4.5.MPSM16T1E1PPP[FR].a > dspcon 1 1000
```

```
-----
Local      :          NSAP Address          vpi      vci
(S)        4700918100000000309409F6DD000001051FFF00      0      1000
Remote    :          NSAP Address          vpi      vci
(M)        00000000000000000000000000000000000000000000      0      0
-----
Port Number      : 1                      DLCI          : 1000
Conn. Type       : frForward                Chan Service Type: High Priority
Conn Service Type : cbr1                    Egress Queue Type: highPriority
Admn Status      : UP                       Oper Status    : FAILED
Slave Persist    : N/A                      Max Cost       : N/A
CIR (bps)        : 123456                    BC (bytes)     : 10300
BE (bytes)       : 10300                      FECN Config    : setEFCIzero
ChanDEtoCLPmap   : setCLPzero                ChanCLPtoDEmap : ignoreCLP
IngrPercentUtil  : 100                       EgrPercentUtil : 100
EgrSrvRate (bps) : 10000                     ZeroCirEir (bps) : N/A
DE Tagging       : DISABLED                   IgnoreIncomingDE : DISABLED
Pref Rte Id      : 0                         Directed Route  : NO
Upload           : 00000002                   Routing Priority : 0
OAM CC Config    : DISABLED                   Statistics      : ENABLED
Local Loopback   : DISABLED                   UPC             : ENABLED
-----
```

Type <CR> to continue, Q<CR> to stop:

```
Local PCR (cps) : 463                      Remote PCR (cps) : 38
Local SCR (cps) : N/A                      Remote SCR (cps) : N/A
Local MCR (cps) : N/A                      Remote MCR (cps) : N/A
:                                             Remote MBS (cps) : N/A
-----
```

```
Xmt Abit State   : A equal 0                Rcv Abit State   : OFF
Xmt ATM State    : Not Sending                Rcv ATM State    : Not Recving
-----
```

```
E-AIS/RDI   CONDITIONED   CCFAIL   IfFail   Mismatch   LMI-ABIT
NO          YES          NO        NO        NO         NO
-----
```

cnffrparms

Configure Frame Relay Parameters

Service Context—Frame Relay and PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnffrparms** command to configure the Frame Relay or PPP Egress QoS scheme.



Note

You cannot change the QoS scheme configuration while Frame Relay ports exist on the card. If you want to modify the QoS scheme configuration, you must first delete all Frame Relay ports from the card.

Syntax

```
cnffrparms -egrQos <egrQos>
```

Syntax Description

-egrQos	Frame Relay Egress QoS Scheme:
	<ul style="list-style-type: none"> • 3 = twoPlusOneFrame (default) • 4 = twoPlusOneByte

Related Commands

dsprparms, dspports

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user sets the QoS scheme to two plus one byte.

```
.M8830_CH.12.MPSM155[FR] .a > cnffrparms -egrQos 4
```

cnfilmi

Configure ILMI

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfilmi** command to configure the card-level interim local management interface (ILMI). Activating the card-level ILMI through **cnfilmi** requires a pre-existing logical port (see **addport**) and resource partition (see **addrscrptn** or **addpart**). The MPSM automatically adds a partition when you add a port.



Note

For network-level ILMI in relation to PNNI, run the PNNI-specific ILMI commands on the PXM.

Syntax

```
cnfilmi -if <ifNum> -id <partitionID> -ilmi <ilmiEnable> -vpi <vpi> -vci <vci> -trap
<ilmiTrapEnable> -s <keepAliveInt> -t <pollingIntervalT491> -k <pollInctFact>
```

Syntax Description

-if	Specifies the interface number (port number) for which you want to configure ILMI. Note Enter the dspparts command in the ATM CLI context to display the interface number and partition id for all active ATM ports.
-id	Specifies the partition ID, in the range 1–20. (See description of addpart or addrscrptn for information regarding resource partition ID.)
-ilmi	Enable or disable ILMI. <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-vpi	VPI for the ILMI signaling connection, in the range 0–255.
-vci	VPI for the ILMI signaling connection, in the range 0–65535.
-trap	Enable or disable ILMI trap. <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-s	Keep alive interval, in the range 1–16 seconds.
-t	Polling interval timer value for T491, in the range 0–255 seconds. Note Enter 0 to disable polling on the specified interface.
-k	Polling inactive factor K, in the range 0–255.

Related Commands

dspilmi, **dspilmis**, **dnilmi**, **upilmi**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

Enable ILMI on port 4, partition 1, VPI 40/VCI 99 so that traps are sent at an interval of 20 seconds. Configure polling for T491 of 10 seconds and K intervals of 10.

```
M8850_NY.13.MPSM155[ATM] .a > cnfilmi -if 4 -id 1 -ilmi 1 -vpi 40 -vci 99 -s 20 -t 10 -k 10
```

cnfimagr

Configure IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfimagr** command to configure an IMA group. Modifying any attribute restarts the IMA group.

Syntax

```
cnfimagr <-grp group> [-ver <version>] [-txm <minLinks>] [-txid <txImaId>] [-txfl <txFrameLen>]
[-dd <diffDelayMax>] [-uptim groupUpTime] [-dntim <groupDownTime>] [-vfb <verFallback>]
[-mode <autoRestart>] [-rxid <rxImaIdExpected>] [-cm <txclkMode>]
```

Syntax Description

-grp	Specifies the IMA group. Note Enter the dspimagrps command to display a list of all IMA groups on the current card.
-ver	The version number of ATM Forum IMA specification. <ul style="list-style-type: none"> • 1 = Version 1.0 • 2 = Version 1.1
-txm	The minimum number of links that must be operational before the IMA group is operational. <ul style="list-style-type: none"> • MPSM-T3E3-155 range: 1-16 • MPSM-16-T1E1 range: 1-8 <p>For example, if you create an IMA group of 4 links and specify a minimum number of 3 links, then three of the four specified links must be operational before the IMA group can be used.</p>
-txid	The IMA ID number transmitted in the IMA ID field of the ICP cell, in the range 0–255.
-txfl	The length of transmitted IMA frame in bytes. For IMA version 1.0, the <i>txImaFrameLength</i> value is 128. For version 1.1, the <i>txImaFrameLength</i> value can be 32, 64, 128, or 256.
-dd	The maximum differential delay in milliseconds. <ul style="list-style-type: none"> • T1 range: 1–275 ms • E1 range: 1–220 ms
-uptim	The group up time, in the range 0–400000 milliseconds. Default: 10000.
-dntim	The group down time in the range 0–100000 milliseconds. Default: 2500.

-vfb	Enables or disables version fallback on the IMA group. <ul style="list-style-type: none"> • 1 = Enable version fallback • 2 = Disable version fallback <p>Note You must enable version fallback on the card level before you enable it for individual IMA groups. See cnfimparms -fallback.</p>
-mode	Configures IMA auto restart functionality for the current group. <ul style="list-style-type: none"> • 1 = Disable IMA auto-restart • 2 = Relearn IMA auto-restart • 3 = Resume a previous IMA auto-restart <p>Note You must enable auto-restart on the card level before you enable it for individual IMA groups. See cnfimparms -restart.</p>
-rxid	Identifies the expected received IMA ID, either -1 or in the range 1-255.
-cm	Sets the transmit clock mode. <p>Note Applies to MPSM-16-T1E1 only.</p>

Related Commands

addimagrp, delimagrp, dspimagrp, dspimagrps,

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the example that follows, the user configures IMA group 1 with the following options, and then displays the results:

- IMA version: 1.1
- minimum of transmit links: 4
- transmit IMA Id: 1
- transmit IMA frame length: 128 bytes
- A maximum differential delay: 200 milliseconds
- up time: 300000 milliseconds
- down time: 20000 milliseconds
- version fallback: enabled
- auto-restart mode: disabled
- expected received IMA ID: -1

```
NodeB.6.MPSM155 [ATM] .a > cnfimagr -grp 1 -ver 2 -txm 4 -txid 1 -txfl 128 -dd 200
-uptim 300000 -dntim 20000 -vfb 1 -mode 1 -rxid -1
```


cnfimalnk

Configure IMA Link

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfimalnk** command to configure LIF and LODS integration timers for an IMA link.

Syntax

cnfimalnk -lnk <line/pathId>, **-uplif** <lifUpTime>, **-dnlif** <lifDnTime>, **-uplods** <lodsUpTime>, **-dnlods** <lodsDnTime>

Syntax Description

-lnk	The link (line or path) in the IMA group to configure: Note Enter the dspimalnks command to display a list of all line or path numbers on the current card.
-uplif	LIF integration up time, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.
-dnlif	LIF integration down time, in the range 0–25000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.
-uplods	LODS integration up time, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.
-dnlods	LODS integration down time, in the range 0–25000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.

Related Commands

addimalnk, **delimalnk**, **dspimalnk**, **dspimalnks**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user configures IMA link 1.2:2 for a link LIF up time of 20000, a Link LIF downtime of 10000, al Link LODS uptime of 2500, and a link LODS integrated downtime of 10000.

```
NodeB.6.MPSM155 [ATM] .a > cnfimalnk -lnk 1.2:2 -uplif 20000 -dnlif 10000 -uplods 2500
-dnlods 10000
```

cnfimalnktst

Configure IMA Link Test

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfimalnktst** command to change the test pattern number for the specified IMA *group* and *link* during an IMA link connectivity test.

Syntax

```
cnfimalnktst -grp <group> -lnk <link> -pat <testPat>
```

Syntax Description

-grp	Specifies the IMA group number. Note Enter the dspimalnks command to display the all active IMA links and the groups to which they belong on the current card.
-lnk	Identifies the IMA link (line or path) to configure: Note Enter the dspimalnks command to display the all active IMA links on the current card.
-pat	The test pattern number, in the range 1–254. • -1 causes the program to choose its own pattern.

Related Commands

startimalnktst, **stopimalnktst**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user configures the IMA test pattern 200 on the IMA link 1.2:2 in IMA group 1.

```
NodeB_6.MPSM155 [ATM] .a > cnfimalnktst -grp 1 -lnk 1.2:2 -pat 200
```

cnfimaparms

Configure IMA Parameters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfimaparms** command to configure the card for global IMA parameters.



Note

You can enter this command in both the ATM and Frame Relay service contexts, but it applies to ATM IMA groups only.

Syntax

```
cnfimaparms [-restart {enable | disable} [-fallback {enable | disable}
[-minId <min_id>] [-maxId <max_id>]
```

Syntax Description

-restart	<p>Enables or disables the IMA group auto-restart feature for the card:</p> <p>1 or enable = Enable the auto restart feature</p> <p>2 or disable = Disable the auto restart feature (default)</p> <p>Note To enable this feature on individual IMA groups, enter the cnfimagr -mode <1 2> command.</p> <p>Note The cnfautorestart <1 2> command also configures this feature.</p>
-fallback	<p>Enables or disables IMA version fallback support for the card.</p> <p>1 = Enable the auto restart feature (default)</p> <p>2 = Disable the auto restart feature</p> <p>To enable this feature on individual IMA groups enter the cnfimagr -vfb <1 2> .</p>
-minId	<p>Specifies the minimum IMA identifier that can be used for any IMA group on the current card, in the range 0-255.</p>
-maxId	<p>Specifies the maximum IMA identifier that can be used for any IMA group on the current card, in the range 0-255.</p>

Related Commands

cnfimagr, cnfautorestart, dspimaparms

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enables IMA group auto-restart mode and IMA version fallback support, configures the minimum IMA ID to be 100, and configures the maximum IMA ID to be 200.

```
M8830_CH.12.MPSM155[FR].a > cnfimaparms -restart 1 -fallback 1 -minId 100 -maxId 200
```

cnfln

Configure Line

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfln** command to configure a SONET/SDH, DS3/E3, or DS1/E1 line on the current card. Use the **cnfln** command after you have activated the line using **upln**.



Note

You cannot configure a line that currently has virtual interfaces configured.

Syntax —(SONET/SDH Lines)

```
cnfln <bay.line> -slt <LineType> -clk <clockSource>
```

Syntax Description —(SONET/SDH Lines)

<i>bay.line</i>	Identifies the MPSM-T3E3-155 line you want to configure, in the format <i>bay.line</i> . Note Use the dsplns command to display the line numbers for all lines on the current card.
-slt	Sets the line type to SONET or SDH. The possible values are: <ul style="list-style-type: none"> 1 = sonetSts3c, which selects SONET (default) 2 = sonetStm1, which selects SDH
-clk	Specifies the transmit clock source. The possible values for this parameter are: <ul style="list-style-type: none"> 1 = loopTiming source—The line clock from the back card is the transmit clock source. 2 = localTiming source (default)—The local clock from the backplane is the transmit clock source.

Syntax (DS1 Lines)

cnfln <bay.line> **-len** <LineLength> **-clk** <clockSource> **-lt** <LineType> **-lc** <Line Coding>

Syntax Description (DS1 Lines)

<i>bay.line</i>	Identifies the MPSM-16-T1E1 line you want to configure, in the format <i>bay.line</i> Note Use the dsplns command to display the line numbers for all lines on the current card
-len	Specifies the DS1 Line Length in meters
-clk	Specifies the transmit clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The line clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The local clock from the backplane is the transmit clock source.
-lt	Specifies the Framing Type: <ul style="list-style-type: none"> • 2 = D_dsx1LineType_dsx1ESF, • 3 = D_dsx1LineType_dsx1D4
-lc	Specifies the line coding type <ul style="list-style-type: none"> • 2 = B8ZS • 5 = AMI

Syntax (E1 Lines)

cnfln <bay.line> **-clk** <clockSource> **-lt** <LineType> **-lc** <Line Coding>

Syntax Description (E1 Lines)

<i>bay.line</i>	Identifies the MPSM-16-T1E1 line you want to configure, in the format <i>bay.line</i> Note Use the dsplns command to display the line numbers for all lines on the current card
-clk	Specifies the transmit clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The line clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The local clock from the backplane is the transmit clock source.

-lt	Defines if CRC and TS-16 Multiframe is enabled for E1. <ul style="list-style-type: none"> • 4 = D_dsx1LineType_dsx1E1, • 5 = D_dsx1LineType_dsx1E1CRC, • 6 = D_dsx1LineType_dsx1E1MF, • 7 = D_dsx1LineType_dsx1E1CRCMF
-lc	Specifies the line coding type. <ul style="list-style-type: none"> • 3 = HDB3 • 5 = AMI

Syntax (DS3 Lines)

cnfln <bay.line> **-lt** <LineType> **-len** <LineLength> **-oof** <OOFCriteria> **-cb** <AIScBitsCheck> **-rfeac** <RcvFEACValidation> **-sc** <sendCode> **-clk** <clockSource> **-chan** <channelization>

Syntax Description (DS3)

<i>bay.line</i>	Identifies the MPSM-T3E3-155 line you want to configure, in the format <i>bay.line</i> . Note Use the dsplns command to display the line numbers for all lines on the current card.
-lt	Specifies the DS3 line type. The possible values are: <ul style="list-style-type: none"> • 1 = ds3cbitadm • 2 = ds3cbitplcp • 9 = dsx3M23 • 11 = dsx3CbitParity
-len	Specifies the DS3 line length in meters. Set the line length to match the physical length of the cable. Setting this value to a value higher than the actual length of the cable may cause a higher output drive from the card. However, this will not impact the overall power consumption or heat dissipation of the card.
-oof	Specifies the threshold for triggering an out-of-frame condition. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error.
-cb	Determines whether the node checks the C-bit in response to AIS. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = check the C-bit • 2 = ignore the C-bit
-rfeac	Sets the FEAC (far-end alarm and control) code validation criteria. The possible values are: <ul style="list-style-type: none"> • 1 = 4 out of 5: a valid FEAC code is declared if 4 of 5 codes match. • 2 = 8 out of 10: a valid FEAC code is declared when 8 of 10 codes match.

-sc	Identifies the line send code. Note Release 5 of the MPSM-T3E3-155 does not support the -sc option.
-clk	Specifies the transmit clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The line clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The local clock from the backplane is the transmit clock source.
-chan	Enables or disables DS1 channelization on the specified DS3 line. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = Disabled • 2 = Enabled

Syntax (E3)

cnfln <bay.line> **-lt** <lineType> **-clk** <clockSource> **-txtrace** <TraceString>

Syntax Description (E3)

<i>bay.line</i>	Identifies the MPSM-T3E3-155 line you want to configure, in the format <i>bay.line</i> . Note Use the dsplns command to display the line numbers for all lines on the current card.
-lt	Specifies the E3 line type. The possible values are: <ul style="list-style-type: none"> • 17 = e3g832frmronly • 18 = e3g751frmronly
-clk	Specifies the transmit clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The line clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The local clock from the backplane is the transmit clock source.
-txtrace	Optional keyword that allows you to transmit and display trail trace bytes. You can test the line by transmitting a group of numbers using cnfln -txtrace and then displaying the result using the dspln command to see if the numbers are the same. The <i>TraceString</i> is a number that can be a maximum of 15 bytes.

Related Commands

dsplns, dspln, dnln, upln, addlnloop

Attributes

Log: yes State: active Privilege: ANYUSER

Example

In the following example, the user configures the sonet line 1.1 so that the line type is SONET, and the transmit clock uses the recovered receive clock from the backcard (loop timing).

```
M8850_NY.13.MPSM155 [ATM] .a > cnfln 1.1 -slt 1 -clk 1
```

In the following example, the user configures the E3 line 1.2 so that its receive clock is the transmit clock source.

```
mpsm_node1.9.MPSM155 [ATM] .a > cnfln 1.2 -clk 2
```

cnflnalm

Configure Line Alarm

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnflnalm** command to configure statistical line alarms thresholds and severities. You can use this command to make the lines more or less sensitive to alarm conditions.

Syntax (Sonet Section)

```
cnflnalm -sonetsec <bay.line> -secsev <Severity> -seces15 <ES15min> -seces24 <ES24Hr>
-secses15 <SES15min> -secses24 <SES24Hr> -secsefs15 <SEFS15min> -secsefs24 <SEFS24Hr>
-seccv15 <UAS15min> -seccv24 <UAS24Hr>
```

Syntax Description (Sonet Sections)

-sonetsec <bay.line>	Identifies the SONET or SDH section on which you want to configure statistical line alarms thresholds. Enter the keyword (-sonetsec) followed by the line number in the format <i>bay.line</i> , where bay = 1 and line = 1-3. For example: -sonetsec 1.2
-secsev	Determines the severity of SONET or SDH section statistical alarm counters. When a Statistical Counter exceeds its specified threshold, the system sends an alarm with appropriate severity. Enter a number to indicate the severity for all statistical alarms on the specified line as follows: <ul style="list-style-type: none"> • 1—minor • 2—major • 3—none (no alarm will be raised).
-seces15	Sets the threshold for errored seconds in the current 15-minute interval.
-seces24	Sets the threshold for errored seconds in the current 24-hour interval.
-secses15	Sets the threshold for severely errored seconds in the current 15-minute interval.
-secses24	Sets the threshold for severely errored seconds in the current 24-hour interval.
-secsefs15	Sets the threshold for severely errored framing seconds in the current 15-minute interval.
-secsefs24	Sets the threshold for severely errored framing seconds in the current 24-hour interval.
-seccv15	Sets the threshold for code violations in the current 15-minute interval.
-seccv24	Sets the threshold for code violations in the current 24-hour interval.

Syntax (Sonet Lines)

```
cnflnalm -sonetline <bay.line> -lnsev <Severity> -lnes15 <ES15min>
-lnes24 <ES24Hr> -lnses15 <SES15min> -lnses24 <SES24Hr> -lncv15 <CV15min>
-lncv24 <CV24Hr> -lnuas15 <UAS15min> -lnuas24 <UAS24Hr>
```

Syntax Description (Sonet Lines)

-sonetline <i><bay.line></i>	Identifies the SONET orSDH line which to you want to configure statistical line alarms thresholds. Enter the keyword (-sonetline) followed by the line number in the format <i>bay.line</i> , where bay = 1 and line = 1-3. For example: -sonetline 1.2 Note Use the dsplns command to display the line numbers for all lines.
-lnsev	Determines the severity of SONET or SDH line statistical alarm counters. When a Statistical Counter exceeds its specified threshold, the system sends an alarm with appropriate severity. Enter a number to indicate the severity for all statistical alarms on the specified line as follows: <ul style="list-style-type: none"> • 1—minor • 2—major • 3—none (no alarm will be raised).
-lnes15	Sets the threshold for errored seconds in the current 15-minute interval.
-lnes24	Sets the threshold for errored seconds in the current 24-hour interval.
-lnses15	Sets the threshold for severely errored seconds in the current 15-minute interval.
-lnses24	Sets the threshold for severely errored seconds in the current 24-hour interval.
-lncv15	Sets the threshold for code violations in the current 15-minute interval.
-lncv24	Sets the threshold for code violations in the current 24-hour interval.
-lnuas15	Sets the threshold for unavailable seconds in the current 24-hour interval.
-lnuas24	Sets the threshold for unavailable seconds in the current 24-hour interval.

Syntax (DS3/E3 Lines)

```
cnflnalm ds3|-e3 <bay.line> -dsev <severity> -lcv15 <LCV15min> -lcv24 <LCV24Hr>
-les15 <LES15min> -les24 <LES24Hr> -pcv15 <PCV15min> -pcv24 <PCV24Hr>
-pes15 <PES15min> -pes24 <PES24Hr> -pses15 <PSES15min> -pses24 <PSES24Hr>
-sefs15 <SEFS15min> -sefs24 <SEFS24Hr> -uas15 <UAS15min> -uas24 <UAS24Hr>
```

Syntax Description DS3/E3 Lines)

-ds3 -e3 <i><bay.line></i>	Identifies the DS3/E3 line which to you want to configure statistical line alarms thresholds. Enter the keyword (-ds3 or -e3) followed by the line number in the format <i>bay.line</i> , where bay = 1 and line = 1-3. For example: -ds3 1.2 Note Use the dsplns command to display the line numbers for all lines.
-dsev	Determines the severity of DS3 or E3 statistical alarm counters. When a Statistical Counter exceeds its specified threshold, the system sends an alarm with appropriate severity. Enter a number to indicate the severity for all statistical alarms on the specified line as follows: <ul style="list-style-type: none"> • 1—minor • 2—major • 3—none (no alarm will be raised).

-lncv15	Sets the threshold for code violations in the current 15-minute interval.
-lncv24	Sets the threshold for code violations in the current 24-hour interval.
-les15	Sets the threshold for errored seconds in the current 15-minute interval.
-les24	Sets the threshold for errored seconds in the current 24-hour interval.
-pcv15	Sets the threshold for PVC errors in the current 15-minute interval.
-pcv24	Sets the threshold for PVC errors in the current 24-hour interval.
-pes15	Sets the threshold for errored seconds in the current 15-minute interval.
-pes24	Sets the threshold for errored seconds in the current 24-hour interval.
-pses15	Sets the threshold for P-bit errored seconds in the current 15-minute interval.
-pses24	Sets the threshold for P-bit errored seconds in the current 24-hour interval.
-sefs15	Sets the threshold for severely errored framing seconds in the current 15-minute interval.
-sefs24	Sets the threshold for severely errored framing seconds in the current 24-hour interval.
-uas15	Sets the threshold for unavailable seconds in the current 24-hour interval.
-uas24	Sets the threshold for unavailable seconds in the current 24-hour interval.

Syntax (PLCP Lines)

```
cnflnaln -plcp <bay.line> -psev <severity>
-bcv15 <CV15min> -bcv24 <CV24Hr> -bes15 <ES15min> -bes24 <ES24Hr>
-bses15 <SES15min> -bses24 <SES24Hr> -pses15 <SEFS15min>
-pses24 <SEFS24Hr> -puas15 <UAS15min> -puas24 <UAS24Hr>
```

Syntax Description (PLCP Lines)

-plcp <bay.line>	Identifies the PLHP line which to you want to configure statistical line alarms thresholds. Enter the keyword (-plcp) followed by the line number in the format <i>bay.line</i> , where bay = 1 and line = 1-3. For example: -plcp 1.2 Note Use the plcp command to display the line numbers for all lines.
-psev	Determines the severity of DS3 or PLCP statistical alarm counters. When a Statistical Counter exceeds its specified threshold, the system sends an alarm with appropriate severity. Enter a number to indicate the severity for all statistical alarms on the specified line as follows: <ul style="list-style-type: none"> • 1—minor • 2—major • 3—none (no alarm will be raised).
-bcv15	Sets the threshold for code violations in the current 15-minute interval.
-bcv24	Sets the threshold for code violations in the current 24-hour interval.
-bes15	Sets the threshold for errored seconds in the current 15-minute interval.
-bes24	Sets the threshold for errored seconds in the current 24-hour interval.
-bses15	Sets the threshold for severely errored seconds in the current 15-minute interval.
-bses24	Sets the threshold for severely errored seconds in the current 24-hour interval.

-pses15	Sets the threshold for P-bit severely errored seconds in the current 15-minute interval.
-pses24	Sets the threshold for P-bit severely errored seconds in the current 24-hour interval.
-puas15	Sets the threshold for unavailable seconds in the current 24-hour interval.
-puas24	Sets the threshold for unavailable seconds in the current 24-hour interval.

Related Commands

clrInalm, dsplnalm, dsplnalcnf, dsplnalment, dsplnalms

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example (E3)

In the following example, the user configures the E3 line 1.1 to show minor alarms when any of the statistical counters exceed their threshold. The user also sets the threshold for code violations in the current 24-hour and 15-minute intervals to 500.

```
mpsm_node1.9.MPSM155 [ATM] .a > cnfInalm -e3 1.1 -dsev 1 -lcv15 500 -lcv24 500
```

cnfmfrbundle

Configure Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnfmfrbundle** command to configure an MFR bundle.

Syntax

```
cnfmfrbundle -bundle <bundleNum>
[-class <activationclass>] [-minlinks <minimumlinks>]
[-hellotimer <hellotimer>] [-acktimer <acktime>]
[-maxretry <maxretry>] [-bname <bundleName>]
```

Syntax Description

-bundle	Identifies the MFR bundle number. Note Enter the dspmfrbundles command to display all MFR bundles on the card.
-class	Bundle activation class: <ul style="list-style-type: none"> • 1=Class A—At least one bundle links must be operational for the MFR Bundle to be operational • 2=Class B—All the bundle links must be operational for the MFR Bundle to be operational • 3=Class C—Configured number of bundle links must be operational for the MFR Bundle to be operational.
-minlinks	Minimum number of Links for Class-C activation class, in the range 1-12.
-hellotimer	Interval for sending hello messages, in the range 1-180 seconds
-acktimer	Maximum time period to wait for an acknowledgement from the far end, in the range 1-10 seconds
-maxretry	Maximum number of Retries (Maximum retries), in the range 1-5 retries.
-bname	Near-end bundle name: A null-terminated string consisting of ASCII characters A-Z, a-z, 0-9 and any printable characters, with a maximum of 49 characters.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmfrbundle, **delmfrbundle**, **dspmfrbundle**, **dspmfrbundles**

Example

In the following example, the user sets the hello timer to 20 seconds for MFR bundle 3.

```
M8850_SF.10.MPSM155[FR].a > cnfmfrbundle -bundle 3 -hellotimer 20
```

cnfmfrlnk

Configure Multi-link Frame Relay Link

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnfmfrlnk** command to configure the name of an MFR link.

Syntax

```
cnfmfrlnk -link <lnkNum> -lname <linkname>
```

Syntax Description

-link	Specifies the MFR link number: Note Enter the dspmfrlnks command to display all MFR links on the card.
-lname	Near-end link name: A null -terminated string consisting of ASCII characters A-Z, a-z, 0-9 and any printable characters with a maximum of 49 characters.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmfrlnk, **delmfrlnk**, **dspmfrlnk**, **dspmfrlnks**

Example

In the following example, the user sets the name of MFR link 1.1:11 to GoldenGateLink111.

```
M8850_SF.10.MPSM155[FR].a > cnfmfrlnk -link 1.1:11 -lname GoldenGateLink111
```


cnfmpbundle

Configure MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **cnfmpbundle** command to change the configuration of an MLPPP bundle.

Syntax

```
cnfmpbundle -bundle <bundleNumber> [-mrru <value>] [-endDisc <value>]
```

Syntax Description

-bundle	Specifies the MLPPP bundle number. Note Enter the dspmpbundles command to display all MLPPP bundles on the card.
-mrru	Specifies the Max Received Reconstructed Unit (MRRU), in the range 64 - 1524. After the user adds a link to an MLPPP bundle, the MRRU is sent to the remote end, which notifies the remote end that this link is capable of receiving MLPPP packets.
-endDisc	Describes the bundle endpoint. The value is null terminated string that contains printable ASCII characters, which include A-Z, a-z, and 0-9. Maximum length: 20 characters.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmpbundle, **delmpbundle**, **dspmpbundle**

Example

In the following example, the user changes the MRRU to 1024 for MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > cnfmpbundle -bundle 5 -mrru 1024  
Warning: Bundle Config is being changed, traffic might be interrupted briefly
```

cnfmpbundleparams

Configure MLPPP Bundle parameters

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **cnfmpbundleparams** command to configure Layer 2 QoS parameters on an MLPPP bundle.

Syntax

```
cnfmpbundleparams -bundle <bundleNumber> [-q0threshold <value>] [-q1threshold <value>]
[-q2threshold <value>] [-normpvcbw <value>] [-autobw <value>]
```

Syntax Description

-bundle	Specifies the MLPPP bundle number. Note Enter the dspmbundles command to display all MLPPP bundles on the card.
-q0threshold	Q0 threshold, range 0 - 65535 packets Default: 100
-q1threshold	Q1 threshold, range 0 - 65535 packets Default: 100
-q2threshold	Q2 threshold, range 0 - 65535 packets Default: 100
-normpvcbw	Normalized PVC bandwidth, range 0 - 176603 cps Default: 8600 cps
-autobw	Auto PVC bandwidth mode. When enabled, the card automatically negotiates the PVC bandwidth on connections to the RPM-XF. <ul style="list-style-type: none"> • 1 = enable—The card automatically negotiates the bandwidth on RPM-XF PVCs to assure that the queues operate correctly. • 2 = disable—You must manually configure the bandwidth on RPM-XF PVCs to avoid overloading the queues.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmpbundle, **delmpbundle**, **dspmbundle**

Example

In the following example, the user disables the dynamic bandwidth feature on MLPPP bundle2.

```
M8850_SF.10.MPSM155[FR].a > cnfmpbundleparams -bundle 2 -autobw 2
```

cnfpart

Configure Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfpart** command to modify a resource partition. A resource partition consists of minimum and maximum percentages of bandwidth, a VPI/VCI range, and a minimum and maximum number of connections available to a network control application. The current network controller is PNNI. Refer to the description of **addpart** for information on resource partitions.

You must bring the port down using **dnport** before you can configure a partition using **cnfpart**.



Note

The **cnfpart** and **cnfrsoprtn** commands are identical. The name “cnfrsoprtn” is consistent with the corresponding command in a Cisco MGX 8850 PXM1-based switch. You can use either command.

Important VPI/VCI Range Issues

When configuring a partition, be sure to configure the VPI/VCI ranges to meet your actual usage requirements. It is important that you do not configure the entire VPI/VCI range for a single partition. The ability to seamlessly add new partitions in the future depends on configuring only the necessary ranges for each partition.

The Cisco recommended ranges for a single partition are as follows:

- For a VPI on a UNI port where the available range is 0–255, the recommended range is 0–140.
- For a VPI on a PNNI port where the range is 0–4096, the recommended range is 0–2500 or about 60%.



Caution

If you configure all of the available ranges for the PNNI partition, you will not be able to add a new partition without bringing down the port using the **dnport** command to change the PNNI VPI/VCI ranges. Bringing down a port on a live network is usually not an option.

Syntax (ATM Service Context)

```
cnfpart -if <if> -id <partitionID> -emin <egrMinBw> -emax <egrMaxBw> -imin <ingMinBw>
-imax <ingMaxBw> -vpmin <minVpi> -vpmax <maxVpi> -vcmin <minVci> -vcmax <maxVci>
-mincon <min connections> -maxcon <max connections>
```

Syntax Description (ATM Service Context)

-if	The interface number (partition number) of the partition to configure.
Note	Use the dspparts command in the ATM CLI context to see all active ATM partitions.
-id	A number that identifies the partition, in the range 1-20.
-emin	A guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.

-emax	A maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001 percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.
-imin	A guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)
-imax	A maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.
-vpm	Minimum VPI for the partition: <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095
-vpmax	Maximum VPI for the partition <ul style="list-style-type: none"> • UNI range 0-255 • NNI or VNNI range: 0-4095 <p>The <i>max_vpi</i> cannot be less than the <i>min_vpi</i>.</p> <p>On a virtual trunk, the <i>min_vpi</i> and <i>max_vpi</i> must be the same.</p>
-vcmin	Minimum VCI, in the range from 1–65535
-vcmax	Maximum VCI, in the range from 1–65535
	The <i>max_vci</i> cannot be less than the <i>min_vci</i> .
-mincon	Guaranteed number of connections. Value: 0 only
-maxcon	A maximum number of connections, in the range 10-2000.

Syntax (Frame Relay Service Context)

```
cnfpart <ifNum> <ctrlNum> [-lcn <available connections>] [-dlcim <minDlci>]
[-dlcimmax <maxDlci>] [-ibw <ingPctBw>] [-ebw <egrPctBw>]
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (partition number) of the partition to configure. Note Use the dspparts command in the Frame Relay CLI context to see all active partitions.
<i>ctrlNum</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.
-lcn	Maximum number of connections. <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 0-2000 • MPSM-T3E3-155 range: 0-4000

-dlcimin	<p>Minimum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 0-8355840, in multiples of 32768. <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32768:</p> <p>0 = (0 x 32768) 163840 = (5 x 32768) 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>
-dlcimax	<p>Maximum DLCI value.</p> <ul style="list-style-type: none"> • 2-byte header range: 0-1023. • 4-byte header range: 32767-8355840, in multiples of 32768, minus 1. <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32768 minus 1:</p> <p>32767 = (32768 * 1)-1 163839 = (32768 * 5)-1 6520831 = (32768 * 199)-1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p>
-ibw	<p>Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>
-ebw	<p>Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.</p>

Related Commands

addpart, delpart, dsppart, dsppart

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user enters the **cnfpart** command to configure resource partition 1 with the following parameters:

- guaranteed egress bandwidth—9000
- maximum egress bandwidth—9000
- guaranteed ingress bandwidth—1000
- maximum ingress bandwidth—10000
- minimum VPI—0
- maximum VPI—200
- minimum VCI—1

- maximum VCI—60000

```
NodeB.6.MPSM155[ATM].a > cnfpart -if 4 -id 1 -emin 9000 -emax 9000 -imin 1000 -imax 10000  
-vpmin 0 -vpmax 200 -vcmin 1 -vcmax 60000
```

Example (Frame Relay Service Context)

In the following example, the user enters the **cnfpart** command to configure resource partition 2 so that it has the logical channel number 2000.

```
mpsm_node.5.MPSM155[FR].a > cnfpart 50 2 -lcn 2000
```

cnfpath

Configure Path

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnfpath** command to create or configure paths (channels) a SONET/SDH or DS3/E3 line. You provision the SONET/SDH path width with the **-width** keyword, and the service type using the **-payload** keyword.

Syntax—Sonet/SDH Path

For an STS path in an “up” state, use the following syntax:

```
cnfPath [-sts] <path_id> [-payload <sts_au_payload_type>] [-txtrace <trace-string>]
```

For an STS path in a “down” state, use the following syntax:

```
cnfPath [-sts] <path_id> [-width <width_spec>]
```

Syntax Description—Sonet/SDH Path

-sts	The -sts keyword explicitly selects STS paths in SONET networks, or AU paths in SDH networks.
<i>path_id</i>	Specifies the id of the STS/STM path you want to configure, in the following format: <i>bay.line.sts</i> where: <i>bay</i> = 1, <i>line</i> = 1, <i>sts</i> = 1-3 Use the dsppaths -sts command to display the existing STS/STM paths.
-payload	Specifies the payload type. The possible values for this parameter are: <ul style="list-style-type: none"> • 2 = unspecified • 3 = ds3—Configure a DS3 payload • 4 = vt15vc11—Configure virtual tributaries for DS1 • 5 = vt2vc12—Configure virtual tributaries for E1 • 8 = e3 —Configure an E3 payload • 9 = vtStructured— Configure TUG3 virtual tributaries (SDH line type with -width = 3 only)
-txtrace	The transmitting trail trace string in bytes, up to 64 characters. Enter 0, 16, or 64. For SONET the string can be up to 62 bytes. For SDH the string can be up to 15 bytes.
-width	Specifies the width of the path. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = Configure the path width for SONET STS1 and SDH STM0 • 3 = Configure the path width for SONET STS3c and SDH STM1 <p>Note The path width may only be configured when the path is down.</p>

Syntax—DS3 Path

```
cnfpath [-ds3] <path_id>[-cb <AIScBitsCheck>] [-oof <OOF Criteria>] [-lt <Line Type>]
[-clk <Clock Source>] [-feac <RcvFEAC>] [-lpb <Loopback>] [-chan <Channelization>]
```

Syntax Description—DS3 Path

-ds3	The -ds3 keyword explicitly selects paths with DS3 payloads.
<i>path_id</i>	Specifies the DS3 path you want to configure, in the following format: <i>bay.line.sts</i> where: <i>bay</i> = 1, <i>line</i> = 1, <i>sts</i> = 1-3 Note Use the dsppaths -ds3 command to display the path numbers for all available DS3 paths.
-cb	Determines whether the node checks the C-bit in response to AIS. Enter the keyword (-cb) followed by the <i>AIScBitsCheck</i> identifier. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = check the C-bit • 2 = ignore the C-bit
-oof	Specifies the threshold for triggering an out-of-frame condition. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error.
-lt	Specifies the DS3 line type. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = ds3cbitadm • 2 = ds3cbitplcp • 9 = dsx3M23 • 11 = dsx3CbitParity (default) Note After you add ATM service to a path with the addport command, the line type is set to dsx3CbitParity (option 11) by default. You can change to ds3cbitadm (option 1) or ds3cbitplcp (option 2) only after ATM service has been added to a path with the addport command.
-clk	Specifies the DS3 clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The receive clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The clock source from the backplane is the transmit clock source.

-feac	Specifies the threshold for triggering an FEAC condition. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = 4 out of 5 • 2 = 8 out of 10 • 3 = disable <p>Note Release 5 of the MPSM-T3E3-155 does not support option 3 (disable).</p>
-lpb	Specifies the type of path loopback to apply. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = No loopback • 2 = Local loopback • 3 = Remote loopback
-chan	Enables or disables channelization on the current line. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = Disabled • 2 = Enabled

Syntax—E3 Path

```
cnfpath [-e3] <path_id> [-lt <Line Type>] [-clk <Clock Source>] [-lpb <Loopback>]
[-txtrace <traceString>]
```

Syntax Description—E3 Path

-e3	The -e3 keyword explicitly selects paths with E3 payloads.
<i>path_id</i>	Identifies the E3 path you want to configure, in the following format: <p style="text-align: center;"><i>bay.line.sts</i></p> <p style="text-align: center;">where: <i>bay</i> = 1, <i>line</i> = 1, <i>sts</i> = 1-3</p> <p>Note Use the dsppaths -e3 command to display the path numbers for all available E3 paths.</p>
-lt	Specifies the E3 line type. The possible values for this parameter are: <ul style="list-style-type: none"> • 17 = e3g832frmronly • 18 = e3g751frmronly
-clk	Specifies the E3 clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The receive clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The clock source from the backplane is the transmit clock source.

-lpb	Specifies the type of path loopback to apply. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = No loopback • 2 = Local loopback • 3 = Remote loopback
-txtrace	Optional keyword that allows you to transmit trail trace bytes. You can test the line by transmitting a group of numbers using cnfpath -txtrace and then displaying the result using the dsppath command to see if the numbers are the same.

Syntax—DS1/E1 Path

```
cnfpath [-ds1 | -e1] <path_id> [-lpb <Loopback>][-clk <Clock Source>] [-lt <Line Type>]
```

Syntax Description

-ds1 -e1	The -ds1 and -e1 keyword explicitly select paths with DS1 or E1 payloads, respectively.
<i>path_id</i>	Identifies the DS1 or E1 path you want to configure, in the following formats: <ul style="list-style-type: none"> • DS3 line: <i>bay.line:ds1</i> • DS3 payload: <i>bay.line.sts:ds1</i> • VT payload: <i>bay.line.sts:vtg.vt</i> • VT structured: <i>bay.line.sts:tug3.vtg.vt</i> <p>where: <i>bay</i>=1, <i>line</i>=1, <i>sts</i>=0-3, <i>ds1</i>=1-28, <i>tug3</i>=1-3, <i>vtg</i>=1-7, <i>vt</i>=1-4 (VT15) or 1-3 (VT2)</p> <p>Note Use the dsppaths -ds1 command to display the path numbers for all available DS1 paths. Use the dsppaths -e1 command to display the path numbers for all available E1 paths.</p>
-lpb	Specifies the type of path loopback to apply. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = No loopback • 2 = Local loopback • 3 = Remote loopback

-clk	Specifies the clock source. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = loopTiming source—The receive clock from the back card is the transmit clock source. • 2 = localTiming source (default)—The clock source from the backplane is the transmit clock source.
-lt	Specifies the DS1 or E1 line type. The possible values for this parameter are: <ul style="list-style-type: none"> • 2 = dsx1ESF • 3 = dsx1SF • 4 = dsx1E1 • 5 = dsx1E1CRC • 6 = dsx1E1MF • 7 = dsx1E1CRCMF

Related Commands

dsppath, dsppaths, uppath, dnpath

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user enters the **dnpath** command to bring down the path 1.1.1, and then enters the **cnfpath** command to configure the width of that path to 1 (sts1_stm0). After the configuration is accepted, the user enters the **uppath** command to bring the path back into operation. The user then enters the **cnfpath** command again to configure the payload of that path to 4 (vt15vc11).

```
M8830_CH.12.MPSM155 [FR] .a > dnpath -sts 1.1.1
M8830_CH.12.MPSM155 [FR] .a > cnfpath -sts 1.1.1 -width 1
M8830_CH.12.MPSM155 [FR] .a > uppath -sts 1.1.1
M8830_CH.12.MPSM155 [FR] .a > cnfpath -sts 1.1.1 -payload 4
```

In the following example, the user enters the **cnfpath** command to configure the path 1.1.1:1.2 so that the line type is dsx1ESF, and the transmit clock source is the receive clock from the back card.

```
M8830_CH.12.MPSM155 [FR] .a > cnfpath -dsl 1.1.1:1.2 -lt 2 -clk 1
```

cnfpathalm

Configure Path Alarm

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnfpathalm** command to configure the thresholds and severity for alarms on STS or DS3 paths.

Syntax

```
cnfpathalm <path_num> [-sev <Severity>] [-es15 <ES15min>] [-es24 <ES24Hr>]
[-ses15 <SES15min>] [-ses24 <SES24Hr>] [-cv15 <CV15min>] [-cv24 <CV24Hr>]
[-uas15 <UAS15min>] [-uas24 <UAS24Hr>] [-sefs15 <SEFS15min>] [-sefs24 <SEFS24>]
```

Syntax Description

<i>path_num</i>	The number of the STS or DS3 path you want to configure. Note Use the dsppaths -sts or dsppaths -ds3 command to display the available path numbers.
-sev	The severity level of the alarm to be raised when the specified statistical threshold is exceeded. 1—minor 2—major 3—none
-es15	ES threshold value for a 15 minute window.
-es24	ES threshold value for a 24 hour window.
-ses15	SES threshold value for a 15 minute window.
-ses24	SES threshold value for a 24 hour window.
-cv15	CV threshold value for a 15 minute window.
-cv24	CV threshold value for a 24 hour window.
-uas15	UAS threshold value for a 15 minute window.
-uas24	UAS threshold value for a 24 hour window.
-sefs15	SEFS threshold value for a 15 minute window.
-sefs24	SEFS threshold value for a 24 hour window.

Related Commands

dsppathalmcnf

Attributes

Log: no

State: active, standby, init

Privilege: ANYUSER

Example

Configure the STS path 1.1.1 so that a minor alarm is raised when the following thresholds are exceeded:

- ES 15-minute threshold of 85
- ES 24-hour threshold of 800
- SES 15-minute threshold of 85
- SES 24-hour threshold of 800
- CV 15-minute threshold of 80
- CV 24-hour threshold of 800
- UAS 15-minute threshold of 80
- UAS 24-hour threshold of 800

```
mpsm_node.3.MPSM155 [ATM] .a > cnfpathalm 1.1.1 -sev 1 -es15 85 -es24 800 -ses15 85  
-ses24 800 -cv15 80 -cv24 800 -uas15 80 -uas24 800
```

cnfport

Configure Port

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfport** command to configure or modify the parameters of a logical port. In the ATM CLI context, the ports represent ATM services or IMA groups. In the Frame Relay CLI context, the ports represent Frame Relay services and Multilink Frame Relay bundles.

Syntax (ATM Service Context)

```
cnfport <ifNum> [-min <guaranteedRate>] [-max <maxrate>] [-sct <sctID>]
[-minvpi <minVpi>] [-maxvpi <maxvpi>]
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	<p>Specifies the interface number (port number) of the port you are adding.</p> <p>Note Use the dsports command in the ATM CLI context to display the port numbers for all active ATM ports.</p>
-min	<p>Specifies the guaranteed rate on a logical port in cells per second (cps). The minimum rate can be either the max cell rate of the interface, or a multiple of 50.</p> <p>Use one of the following methods to calculate the guaranteed rate on an IMA port:</p> <ul style="list-style-type: none"> • T1 based IMA group — multiple of 50 not greater than $N * (3622 * (M-1)/M * 2048/2049)$, where N is the number of IMA links in the IMA group, and M is the IMA group frame length. • E1 based IMA group — multiple of 50 not greater than $N * (4528 * (M-1)/M * 2048/2049)$, where N is the number of IMA links in the IMA group, and M is the IMA group frame length. <p>The cumulative guaranteed rate cannot exceed the highest value in the following ranges:</p> <ul style="list-style-type: none"> • OC192: between 50 and 22605280 • OC48: between 50 and 5651320 • OC3: 50–353207 cps • T3: 50–96000 (PLCP) or 104268 (ADM) cps • E3: 50–80000 cps • T1: 50–3622 cps • E1: 50–4528 cps <p>Note The guaranteed rate and max rate settings must be the same.</p>
-max	<p>Specifies the maximum rate on a logical port in cells/second. For all interface types (UNI, NNI, VNNI, EVNNI, and EVUNI), <i>maxrate</i> must be the same as <i>guaranteedRate</i>. See <i>guaranteedRate</i>.</p>

-sct	Specifies the number of a service class template (SCT) for the port. The range is 0–255. Cisco provides SCT numbers 2, 3, 4, and 5. You can modify one of these SCTs through the Cisco WAN Manager application and assign a number in the range 6–255 to the new SCT. Subsequently, you can assign the new SCT to the port with the <i>sctID</i> parameter in cnfport . To display the ID of the current SCT for this port, use dspport . To display the parameters within the current SCT, use the dspportset command. Note The default setting for -sct is 0. Note You must bring down the port with the dnport command before you can change the port SCT.
-minvpi	The minimum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095
-maxvpi	The maximum VPI for an EVUNI or EVNNI interface: <ul style="list-style-type: none"> • EVUNI range: 0-255 • EVNNI range: 0-4095

Syntax (Frame Relay Service Context)

```
cnfport <ifNum>
[-sct <sctID>] [-dlciLen <dlciLen>]
[-flags <portFlagsBetweenFrames>] [-rat <PortQueueServiceRatio>]
[-csum <checksum>] [-oversub <overSubscribeEnable>]
[-lmiSig <lmiSigType>] [-asynUpdt <updateType>]
[-elmi <elmiState>] [-segLmi <segLmiStatus>]
[-t391 <t391Value>] [-t392 <t392Value>]
[-n391 <n391Value>] [-n392 <n392Value>] [-n393 <n393Value>]
[-fragEnable <fragEnable>] [-fragSize <fragSize>] [-hdlcinvt <hdlcinvt>]
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the port you are adding. Note Use the dspports command in the Frame Relay CLI context to display the port numbers for all active Frame Relay ports.
-sct	Specifies the number of a service class template (SCT) for the port, in the range 1-255. Note You must bring down the port with the dnport command before you can change the port SCT.
-dlciLen	Specifies the DLCI header length: <ul style="list-style-type: none"> • 1 = Two-byte DLCI header • 2 = Four-byte DLC header (Broadband Frame Relay only) Note You cannot modify the DLCI header length while there are active connections on the port. Prior to modifying the -dlciLen parameter, enter the delcon command to delete any connection(s) on the specified port.

-flags	<p>Specifies the flags between frames:</p> <ul style="list-style-type: none"> • 1 = 1 flag • 2 = 2 flags • 3 = 4 flags • 4 = 8 flags • 5 = 16 flags • 6 = 32 flags • 7 = 64 flags • 8 = 128 flags <p>Note You cannot modify the DLCI header length while there are active connections on the port. Prior to modifying the -flags parameter, enter the delcon command to delete connections on the specified port.</p>
-rat	<p>This keyword and argument defines the egress service ratio between the high priority and the low priority queues.</p> <p>Enter the keyword followed by a number that indicates the egress service ratio, in the range from 1 to 15.</p> <ul style="list-style-type: none"> • Enter 1 to indicate that no service ratio is configured. In this case, bandwidth is allocated to both the high priority and the low priority queues on demand, which means that traffic is dynamically allocated on a first-come, first-serve basis. • The default setting is 1. In this case, the traffic of the CBR and rt-VBR service categories is allocated to the high priority queue, while the traffic of the nrt-VBR, ABR, and UBR service categories is allocated to the low priority queue. <p>Note You cannot modify the DLCI header length while there are active connections on the port. Prior to modifying the -rat parameter, enter the delcon command to delete any connection(s) on the specified port.</p>
-csum	<p>Checksum type indicator:</p> <ul style="list-style-type: none"> • 1 = crc16 • 2 = crc32 <p>Note You cannot modify the DLCI header length while there are active connections on the port. Prior to modifying the -csum parameter, enter the delcon command to delete any connection(s) on the specified port.</p>
-oversub	<p>Oversubscription indicator:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable <p>Note You cannot modify the DLCI header length while there are active connections on the port. Prior to modifying the -oversub parameter, enter the delcon command to delete any connection(s) on the specified port.</p>

-lmiSig	<p>LMI signaling type indicator:</p> <ul style="list-style-type: none"> • 2 = No Signaling • 3 = StrataLMI • 4 = AnnexAUNI • 5 = AnnexDUNI • 6 = AnnexANNI • 7 = AnnexDNNI <p>Note When LMI is configured, the maximum number of connections per port for Strata LMI port is 560 and for Annex A/D UNI/NNI port is 898.</p>
-asynUpdt	<p>Enables or disables asynchronous updates. Asynchronous updates are an extension to the LMI protocol that notify the user immediately of changes in PVC and Multicast status. Before enabling this feature, make sure that any DTE equipment you are connected to supports asynchronous updates from the network.</p> <p>Asynchronous update control:</p> <ul style="list-style-type: none"> • 1 = Disable both Asynchronous Status Updates and Unsolicited Full Status • 2 = Enable Asynchronous Status Updates • 3 = Enable Unsolicited Full Status • 4 = Enable Asynchronous Status Updates and Unsolicited Full Status
-elmi	<p>Enable or disable enhanced LMI. Enhanced LMI enables the automatic exchange of Frame Relay QoS parameter information between the DTE and DCE. When enabled on both the DTE and the MPSM port, this allows the DTE device to learn QoS parameters from the frame relay port and use them for traffic shaping, configuration, or management purposes.</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-segLmi	<p>Segmented LMI control:</p> <ul style="list-style-type: none"> • 1 = enable • 2 = disable
-t391	<p>T391 timer. This is the Link Integrity Verification polling timer. The user (DTE) sends Status Enquiry messages to the network (DCE) every T391 seconds. An error is recorded if a Status message is not received within T391 seconds. The T391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 5-30.</p>
-t392	<p>T392 timer. This is the Polling Verification timer. The network (DCE) expects Status Enquiry messages from the user (DTE) every T392 seconds. If the network does not receive a Status Enquiry message from the user within T392 seconds and the timer expires, then the network records a missing Status Enquiry message by incrementing the N392 counter. This timer value must be set greater than the T391 timer. The T392 timer always applies to the network. It applies to the network and user if NNI bi-directional polling is present. Range 5-30.</p>
-n391	<p>N391 counter. This setting establishes the Full Status (status of all PVCs) polling cycle. The user (DTE) sends a Full Report Status Enquiry to the network (DCE) every N391 polls. The N391 counter always applies to the user equipment. It applies to the user and network if NNI bi-directional polling is present. Range 1- 255.</p>

-n392	N392 counter. This setting specifies the UNI/NNI error threshold. This is the number of errors during N393 events that will cause an error condition. This counter should be less than or equal to the N393 counter. This counter can apply to both the user (DTE) and the network (DCE). Range 1-10.
-n393	N393 counter. This setting is the monitored UNI/NNI events count, which must be greater than the N392 counter. N392 errors during N393 events will cause an error condition. If the N393 counter is set to a value much less than the N391 counter, the port could go in and out of an error condition without notification to either the user equipment or the network. This counter can apply to both the user (DTE) and the network (DCE). The value of this parameter should be greater than that for the -n392 parameter. Range: 1-10.
-fragEnable	Controls fragmentation on the port. <ul style="list-style-type: none"> • 1=enable • 2= disable.
-fragSize	Specifies the size of the fragments in bytes: <ul style="list-style-type: none"> • 40 • 64 • 128 • 256 • 512
-hdlcinv	Controls HDLCI NV on the port. <ul style="list-style-type: none"> • 1=enable • 2= disable.

Related Commands

addport, delport, dspport, dsports

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user configures a guaranteed minimum of 1000 cps and a maximum rate of 1000 cps for port 10.

```
NodeB.6.MPSM155 [ATM] .a > cnfport 10 -min 1000 -max 1000
```

Example (Frame Relay Service Context)

In the following example, the user configures the LMI signaling type indicator to be Annex ANNI.

```
mpsm_node.5.MPSM155 [FR] .a > cnfport 2 -lmiSig 6
```

cnfppplink

Configure a PPP link

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **cnfppplink** command to change the configuration of a PPP link.

Syntax

```
cnfppplink -link <linkID> [-mru <value>] [-lcpTimeout <msec>] [-ds0speed <mode>]
[-pfcTx <mode>] [-acfcTx <mode>] [-loopCheck <mode>]
```

Syntax Description

-link	Specifies the PPP link number. Enter the dsppplinks command to display all PPP links on the card.
-mru	The Maximum Receive Unit, in the range 64-1524
-lcpTimeout	The length of time to wait for a Echo Reply before bringing down LCP. The value is in msec, rounded down to the nearest 100 msec. Range 1000-4294967.
-ds0speed	DS0 Speed <ul style="list-style-type: none"> • 1 = 56K • 2 = 64K
-pfcTx	Controls the compression of PF in PPP packets transmitted from this end. <ul style="list-style-type: none"> • 1 = enable, PFC is performed if the far end is capable of receiving compressed PF. • 2= disable, PFC is not performed, even if far end is capable of receiving compressed PF.
-acfcTX	Controls the compression of address/control fields in PPP packets transmitted from this end. <ul style="list-style-type: none"> • 1 = enable, ACFC is performed if the far end is capable of receiving compressed address/control fields. • 2 = disable, ACFC is not performed, even if far end is capable of receiving compressed address/control fields.
-loopCheck	Controls loopback check. If loopback check is enabled, when the Magic Number in the incoming Echo Reply is the same as of this PPP link, then this PPP link assumes that the far end is in loopback and brings down its own LCP session. <ul style="list-style-type: none"> • 1 = Enable • 2 = Disable

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addppplink, delppplink, dsppplink

Example

In the following example, the user configures PPP link 1 with an MRU of 1234 and enables acfcTx and pfcTx compression.

```
U4.5.MPSM16T1E1PPP[FR].a > cnfppplink -link 1 -mru 1234 -acfcTx 1 -pfcTx 1
```

cnfpppmux

Configure a PPPMUX parameters.

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **cnfpppmux** command to change PPPMUX parameters.

Syntax

```
cnfpppmux -bundle <bundleNumber> [-pid <pid>] [-muxTimer <muxtimer>]
[-frameLength <length>] [-subFrameLength <length>] [-subFrameCount <count>]
```

Syntax Description

-bundle	Specifies the MLPPP bundle number for which to configure PPPMUX. Note Enter the dspmbundles command to display all MLPPP bundles on the card.
-pid	Default Protocol ID, in the range 0-65535
-muxTimer	Specifies the maximum length of time that the hardware multiplexes packets after multiplexing begins. Values: 0 (disabled), or 64-4000000 microseconds
-frameLength	Maximum mux frame length, in the range 1-512
-subFrameLength	Maximum sub-frame length, in the range 1-512
-subFrameCount	Maximum number of sub-frames in a multiplex super-frame, in the range 2-15.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

dsppppmux

Example

In the following example, the user configures the PPPMUX on bundle 2 by changing the mux timer to 64 microseconds.

```
U4.5.MPSM16T1E1PPP[FR].a > cnfpppmux -bundle 2 -muxTimer 64
```

cnfprfparam

Configure Profiler Parameters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfprfparam** to configure the interval at which the profiler facility is monitored. At the end of the specified interval, a file containing profiler statistics is generated and transferred to the Cisco WAN Manager (CWM) using FTP.

The profiler facility collects and displays statistics about resource usage. The resources include:

- Message queue
- Memory usage
- Memory chunks



Caution

The profiler is a facility intended for developers at Cisco Systems. Because of the possibly large CPU overhead involved with the profiler, using **dspprf** on an overloaded switch can have unpredictable and unacceptable consequences. For example, it could overwhelm a marginally functioning switch. For this reason, you should contact the TAC before using **dspprf** and never run it for exploratory or experimental reasons. For a safer look at system resources, use the Resource Monitoring commands (**cnfrmrsrc**, **dsprmalms**, **dsprmrsrc**, **dsprmrsrcs**, and **dsprminfo**) or the **dspprfhist** command.

Syntax

cnfprfparam <*bucket interval*>

Syntax Description

<i>bucket interval</i>	Specifies the number of seconds to wait before starting the next bucket of profiler statistics, in the range 1 - 600 seconds.
------------------------	---

Related Commands

dspprf, **dspprfhist**

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user configures the profiler statistics collection bucket interval to be 300 seconds.

```
mpsm_node1.5.MPSM155 [FR] .a > cnfprfparam 300
The bucket interval will be effective after the current bucket interval is over.
```

cnfrmrsrc

Configure Resource Monitor Resource

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfrmrsrc** command to configure the resource polling interval and resource thresholds.

Syntax

```
cnfrmrsrc <rsrcId> [-poll] [-loth] [-medth] [-hith]
```

Syntax Description

<i>rsrcID</i>	Resource Index, in the range 0-14 <ul style="list-style-type: none"> • 0 = static memory • 1 = dynamic memory • 2 = statistics memory • 3 = SNMP memory • 4 = IPC small buffer • 5 = IPC meduim buffer • 6 = IPC large buffer • 7 = IPC huge buffer • 8 = IPC mblk buffer • 9 = CPU free • 10 = system memory • 11 = timer • 12 = file descriptor • 13 = VxWorks file descriptor • 14 = system uptime
-poll	The polling interval, in the range 5-86400 seconds (24 hours).
-loth	The low threshold, as a percentage between 0% and the medium threshold.
-medth	The medium threshold, as a percentage between the low threshold and high threshold.
-hith	The high threshold, as a percentage between the medium threshold and 100%.

Related Commands

dsprmrsrcs, **dsprmrsrc**, **dsprmalms**

Attributes

Log: no State: active, standby Privilege: CISCO_GP

Example

In the following example, the user configures the resource monitor resource.

```
mpsm_node1.5.MPSM155 [FR] .a > cnfrmrsrc 9 -poll 30 -loth 25 -medth 50 -hith 75
```


cnfrscrptn

Configure Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **cnfrscrptn** command to modify a resource partition. A resource partition consists of minimum and maximum percentages of bandwidth, a VPI/VCI range, and a minimum and maximum number of connections available to a network control application. The current network controller is PNNI. Refer to the description of **addpart** for information on resource partitions.

You must bring the port down using **dnport** before you can configure a partition using **cnfpart**.



Note

The **cnfrscrptn** and **cnfpart** commands are identical. The name “cnfrscrptn” is consistent with the corresponding command in a Cisco MGX 8850 PXM1-based switch. You can use either command.

Important VPI/VCI Range Issues

When configuring a partition, be sure to configure the VPI/VCI ranges to meet your actual usage requirements. It is important that you do not configure the entire VPI/VCI range for a single partition. The ability to seamlessly add new partitions in the future depends on configuring only the necessary ranges for each partition.

The Cisco recommended ranges for a single partition are as follows:

- For a VPI on a UNI port where the available range is 0–255, the recommended configured range is 0–140.
- For a VPI on a PNNI port where the range is 0–4096, the recommended configured range is 0–2500 or about 60%.



Caution

When adding or configuring a PNNI partition, do not configure the entire VPI/VCI range for one partition. In the future, if you migrate from a PNNI only service to a PNNI service with multiple partitions, you will need the additional VPI/VCI ranges to be able to add a new partition. If you configure all of the available ranges for the PNNI partition, you will not be able to add a new partition without bringing down the port using the **dnport** command to change the PNNI VPI/VCI ranges. Bringing down a port on a live network is usually not an option.

Syntax (ATM Service Context)

```
cnfrscrptn -if <if> -id <partitionID> -emin <egrMinBw> -emax <egrMaxBw> -imin <ingMinBw>
-imax <ingMaxBw> -vpmin <minVpi> -vpmax <maxVpi> -vcmin <minVci> -vcmax <maxVci>
-mincon <min connections> -maxcon <max connections>
```



Note

The maximum number of connections must be greater than 10.

Syntax Description (ATM Service Context)

-if	The interface number (partition number) of the partition to configure. Note Use the dspparts command in the ATM CLI context to see all active ATM partitions.
-id	A number that identifies the partition, in the range 1-20.
-emin	A guaranteed percentage of egress bandwidth. Each unit of <i>egrminbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>egrMinBw</i> of 1000000 = 100%.) These small increments provide a high level of granularity.
-emax	A maximum percentage of egress bandwidth. Each unit of <i>egrmaxbw</i> is 0.0001 percent of the total bandwidth available to the port. (An <i>egrMaxBw</i> of 1000000 = 100%.) The minimum bandwidth must be at least 50 cps.
-imin	A guaranteed percentage of the ingress bandwidth. Each unit of <i>ingminbw</i> is 0.0001 percent of the total bandwidth available to a port. (An <i>ingMinBw</i> of 1000000 = 100%.)
-imax	A maximum percentage of the ingress bandwidth. Each increment of <i>ingmaxbw</i> is 0.0001 percent of the total bandwidth on the port. (An <i>ingMaxBw</i> of 100000000 = 100%.) The maximum ingress bandwidth must be at least 50 cps.
-vpmin	Minimum VPI for the partition: <ul style="list-style-type: none"> UNI range 0-255 NNI or VNNI range: 0-4095
-vpmax	Maximum VPI for the partition <ul style="list-style-type: none"> UNI range 0-255 NNI or VNNI range: 0-4095 <p>The <i>max_vpi</i> cannot be less than the <i>min_vpi</i>. On a virtual trunk, the <i>min_vpi</i> and <i>max_vpi</i> must be the same.</p>
-vcmin	Minimum VCI, in the range from 1–65535
-vcmax	Maximum VCI, in the range from 1–65535 The <i>max_vci</i> cannot be less than the <i>min_vci</i> .
-mincon	Guaranteed number of connections. Value: 0 only
-maxcon	A maximum number of connections, in the range 10-2000.

Syntax (Frame Relay Service Context)

```
cnfrscrptn <ifNum> <controllerNum> [-lcn <available connections>] [-dlcimmin <minDlci>]
[-dlcimmax <maxDlci>] [-ibw <ingPctBw>] [-ebw <egrPctBw>]
```

**Note**

The maximum number of connections must be greater than 10.

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (partition number) of the partition to configure. Note Enter the dspparts command in the Frame Relay CLI context to display all active partitions.
<i>ctrlNum</i>	Specifies a network controller protocol. Enter 2 to specify the PNNI controller. Note Release 5 of the MPSM-T3E3-155 supports the PNNI controller (option 2) only. Options 1 (TAG switching) and 3 (MPLS) are not supported on the MPSM-T3E3-155 card.
-lcn	Maximum number of connections. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 0-2000 MPSM-T3E3-155 range: 0-4000
-dlcimin	Minimum DLCI value. <ul style="list-style-type: none"> 2-byte header range: 0-1023. 4-byte header range: 0-8355840, in multiples of 32768. <p>For example, you can enter one of the following numbers as the minimum DLCI value, or any other number that is a multiple of 32768: 0 = (0 x 32768) 163840 = (5 x 32768) 8355840 = (255 x 32768)</p> <p>Unless your provisioning plan calls for a specific range of DLCI values on a port or card, specify the minimum DLCI value as 0.</p>
-dlcimax	Maximum DLCI value. <ul style="list-style-type: none"> 2-byte header range: 0-1023. 4-byte header range: 32767-8355840, in multiples of 32768, minus 1. <p>For example, you can enter one of the following numbers as the maximum DLCI value, or any other number that is a multiple of 32768 minus 1: 32767 = (32768 * 1)-1 163839 = (32768 * 5)-1 6520831 = (32768 * 199)-1</p> <p>Unless your provisioning plan calls for a specific range of DLCI value on a port or card, specify the maximum DLCI value as 8388607.</p>
-ibw	Maximum ingress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.
-ebw	Maximum egress port bandwidth percentage for the controller type specified with the <i>ctrlrNum</i> argument, in the range 0-100 percent.

Related Commands

addrscrptn, delrscrptn, dsprscrptn, dsprscrptn

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the example that follows, the user enters the **cnfrscrtn** command to configure resource partition 1 with the following parameters:

- guaranteed egress bandwidth—9000
- maximum egress bandwidth—9000
- guaranteed ingress bandwidth—1000
- maximum ingress bandwidth—10000
- minimum VPI—0
- maximum VPI—200
- minimum VCI—1
- maximum VCI—60000

```
NodeB.6.MPSM155[ATM].a > cnfrscrtn -if 4 -id 1 -emin 9000 -emax 9000 -imin 1000  
-imax 10000 -vmin 0 -vmax 200 -vcmin 1 -vcmx 60000
```

Example (Frame Relay Service Context)

In the following example, the user enters the **cnfrscrtn** command to configure resource partition 2 so that it has the logical channel number 2000.

```
mipsm_node.5.MPSM155[FR].a > cnfrscrtn 50 2 -lcn 2000
```

cnftug3

Configure Tributary Unit Group 3 (TUG-3)

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **cnftug3** command to configure the payload of a Tributary Unit Group 3 (TUG3) in an SDH AU-4 path.

Syntax

```
cnftug3 <tug3_id> -payload <payload>
```

Syntax Description

<i>tug3_id</i>	Identifies the TUG3 whose payload you want to configure, in the following format: <i>bay.line.au:tug3</i> where bay = 1, line = 1, au = 0, tug3 = 1-3
Note	Use the dsptug3s command to display the TUG3 numbers for all TUG3s.
-payload	Configures the payload of the specified TUG3. The possible payloads are: <ul style="list-style-type: none"> • 2 = vc11. Select this payload to create 28 DS1s in 28 VC-11/TU-11(VT 1.5) paths within the specified TUG-3. • 3 = vc12. Select this payload to create 21 DS1s in one VC-12/TU-12 (VT 2.0) paths within the specified TUG-3. • 4 = tu3ds3. Select this parameter to create one DS3 in one TU3 path within the specified TUG-3. • 5 = tu3e3. Select this parameter to create one E3 in one TU3 path within the specified TUG-3

Related Commands

dsptug3cnf, dsptug3s

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

Configure TUG3 1.1.0:1 to carry one DS-3 path.

```
M8850_NY.13.MPSM155[FR].a > cnftug3 1.1.0:1 -payload 4
```

core

Core Memory Dump

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **core** command to manage core memory dumps.

For information on the use of this command, see “[Managing MPSM Core Dumps](#)” in Chapter 6, “[Card Management on MPSM-T3E3-155 and MPSM-16-T1E1](#).”

Syntax

```
core [?] [mask] [mask default] [mask <hex-mask>] [enable] [disable] [hot-dump <filename.zip>]
```

Syntax Description

core	Enter the core command without any arguments to display the current core dump settings.
?	List the optional parameters for the core command.
mask	Display the current mask and the error conditions for which a core dump is enabled. Default: 0x262ee. Note To modify the mask, use the mask <hex-mask> syntax.
mask default	Restore the default mask value (0x262ee).
mask <hex-mask>	Change the mask to the specified hexadecimal value. You can specify a mask when core dumping is enabled or disabled for the card.
enable	Enable automatic core dumping for the current slot.
disable	Disable automatic core dumping for the current slot.
hot-dump	Initiate a hot dump of the core to the specified file while the card is running. The file name must be in the format <i>filename.zip</i> . MPSM core dump files are saved in the C:/ directory on the PXM processor card.

Related Commands

The following PXM commands are related to the core command:

ftp, **ll**, **cd**, **dsplog** (use the **dsplog** command with the following parameter: **-mod CRDMP**)

Attributes

Log: **Yes**

State: **Any**

Privilege: **Service Group**

Example

In the following example, the user displays the current core dump settings on an MPSM-T3E3-155 card:

```
M8830_CH.4.MPSM155[FR].a > core
Automatic core dumping is enabled for this slot.
```

```
Saved core images are on PXM's hard disk (C:/).
```

Display the current mask and the error conditions for which a core dump is enabled:

```
M8830_CH.4.MPSM155[FR].a > core mask
Automatic core dumping is enabled for this slot.
The current core mask is 0x262ee.

OFF 00001 not used (can't be turned ON)
ON 00002 DRAM Parity Error
ON 00004 WatchDog Timeout Reset
ON 00008 Resource Overflow
OFF 00010 Clear All Configuration (can't be turned ON)
ON 00020 Missing Task
ON 00040 Reset because of PXM Low Voltage
ON 00080 Reset By Event Log Task
OFF 00100 Reset from Shell
ON 00200 Unknown
OFF 00400 Reset from PXM
OFF 00800 Reset System (can't be turned ON)
OFF 01000 Switch Core Card
ON 02000 Secondary Cache Error
ON 04000 Software Error Reset
OFF 08000 S/W reset due to upgrade (can't be turned ON)
OFF 10000 Restore All Configuration (can't be turned ON)
ON 20000 Device Driver Error
```

delapsln

Delete APS Line

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **delapsln** command to remove the specified APS line redundancy configuration.

See the description for the **addapsln** command for a detailed explanation of Automatic Protection Switching (APS).

Syntax

delapsln <workingline>

Syntax Description

<i>workingline</i>	Identifies the active line you want to delete.
Note	Enter the dspapslns command to display all APS working line identifiers.

Related Commands

addapsln, **cnfapsln**, **dspapsln**, **switchapsln**, **dspapsbkplane**, **clrbecnt**, **dspbecnt**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user deletes the APS line 1.1 from the card in slot 13.

```
M8850_NY.13.MPSM155 [ATM] .a > delapsln 13.1.1
```


delbert

Delete Bit Error Rate Testing Configuration

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delbert** command to clear a BERT (bit error rate test) session from a line, path, or port on the current card. This command may be used to clear a BERT session that is running, or may be used after the BERT session has been stopped.

Syntax

```
delbert <bertIfNum>
```

Syntax Description

<i>bertIfNum</i>	Identifies the logical interface (line, path, or port) on which to delete a BERT session.
Note	Enter the dspberts command to display all bert sessions for the current card.

Related Commands

addbert, cnfbert, dspbert, dspbertcap, dspberts, dspbertstats, startbert, stopbert

Attributes

Log: yes State: active Privilege: GROUP1

Example

```
.M8830_CH.12.MPSM155 [FR] .a > delbert 1.1.2
```

delchanloop

Delete Channel Loop

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delchanloop** command to deactivate a channel loopback.

Syntax (ATM Service Context)

```
delchanloop <IfNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>IfNum</i>	Interface number (port number) of the channel from which to remove a loopback.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM ports.
<i>vpi</i>	The channel VPI.
<i>vci</i>	The channel VCI.

Syntax (Frame Relay Service Context)

```
delchanloop <IfNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>IfNum</i>	Interface number (port number) of the channel from which to remove a loopback.
Note	Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.
<i>dlci</i>	The Data-link connection identifier.

Related Commands

dspschanloop, **addchanloop**, **dspscons**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user deactivates the loopback on interface 17, VPI 44 and VCI 55.

```
M8850_SF.10.MPSM155[ATM].a > delchanloop 17 44 55
Warning: Please clear the stats for this conn to get the updated counters !
```

Example (Frame Relay Service Context)

In the following example, the user deactivates the loopback on interface 3, DLCI 130.

```
M8850_SF.10.MPSM155[FR].a > delchanloop 3 130
Warning: Please clear the stats for this conn to get the updated counters !
```

delcon

Delete Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delcon** command to delete a PVC, SPVC or SPVP:

- For dual-end connections, delete the connection at both ends—starting at the master end.
- To delete a single-end connection, enter this command at the master end only.

Syntax (ATM Service Context)

```
delcon <ifnum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to delete.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) for the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) for the connection.

Syntax (Frame Relay Service Context)

```
delcon <ifNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to delete.
Note	Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay connections.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Context)

```
delcon <ifNum> <dlci>
```

Syntax Description (PPP Context)

<i>ifNum</i>	Interface number (bundle number) of the bundle to disconnect.
Note	Use the dspscons command in the PPP CLI context to display the bundle number and DLCI for all active connections.
<i>dlci</i>	Specifies the data-link connection identifier. Use 1000 for RPM-XF connections.

Related Commands

dspcon, addcon, cnfcon

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user deletes connection on port 20 with VPI 10, VCI 40.

```
NodeB.6.MPSM155[ATM].a > delcon 20 10 40  
Deletion successful
```

Example (Frame Relay Service Context)

In the following example, the user deletes the connection on port 2 with DLCI 1000.

```
mipm_node.5.MPSM155[FR].a > delcon 2 1000  
Deletion successful
```

Example (PPP Service Context)

In the following example, the user deletes the connection on MLPPP bundle 2.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > delcon 2 1000  
Deletion successful
```

delimagrp

Delete IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delimagrp** command to delete the specified IMA *group*.

Syntax

delimagrp <*group*>

Syntax Description

<i>group</i>	Specifies the IMA group to delete.
Note	Enter the dspimagrps command to display a list of all IMA groups on the current card.

Related Commands

addimagrp, dspimagrp, dspimagrps, cnfimagrps

Attributes

Log: yes State: active Privilege: ANYUSER

Example

In the following example, the user enters the **delimagrp** command to delete IMA group 12 from the current card.

```
NodeB.6.MPSM155 [ATM] .a > delimagrp 12
```

delimalnk

Delete IMA Link

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delimalnk** command to delete an IMA link (line or path) from an IMA group.

Syntax

delimalnk <link>

Syntax Description

<i>link</i>	Identifies the T1 or E1 link (line or path) in an IMA group to delete.
Note	Enter the dspimalnks command to see a list of all IMA links on the current card.

Related Commands

dspimagrp, cnfimagr, rstimagrp, dspimalnk, addimalnk

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user deletes the IMA link 1.1:5 from the IMA group that contains it.

```
NodeB.6.MPSM155 [ATM] .a > delimalnk 1.1:5
```

delnloop

Delete Line Loop

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delnloop** command to remove the line loopback from a line and restore it to normal operation.

Syntax

```
delnloop <-ds3 | -e3 | -sonet | -ds1 | -e1> <bay.line>
```

Syntax Description

-ds3 -e3 -sonet -ds1 -e1	Select the keyword that corresponds the line type.
	Note For MPSM-T3E3-155 cards, the keyword -ds3 applies to both DS3 and E3 line types.
<i>bay.line</i>	Identifies the line that you want to remove from local loopback mode, in the format <i>bay.line</i> .
	Note Use the dsplns command to see the line numbers for all lines on the current card.

Related Commands

addnloop

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user removes the loopback for DS3 line number 1.1.

```
M8830_CH.12.MPSM155[FR].a > delnloop -ds3 1.1
Line loop-back status will be changed.
Do you want to proceed (Yes/No) ? y
```


delmfrbundle

Delete Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **delmfrbundle** command to delete an MFR bundle. You must remove all links from the bundle before deleting the bundle.

Syntax

delmfrbundle *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MFR bundle number.

Note Enter the **dspmfrbundles** command to display all MFR bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmfrbundle, **cnfmfrbundle**, **dspmfrbundle**, **dspmfrbundles**

Example

In the following example, the user deletes MFR bundle 3.

```
M8850_SF.10.MPSM155 [FR] .a > delmfrbundle 3
```

delmfrlnk

Delete a Multi-link Frame Relay Link

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **delmfrlnk** command to delete a link from an MFR bundle. You must delete the MFR port before deleting the last link from the bundle.

Syntax

delmfrlnk <link>

Syntax Description

<i>link</i>	Specifies the MFR link to delete.
Note	Enter the dspmfrlnks command to display all MFR links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmfrlnk, cnfmfrlnk, dspmfrlnk, dspmfrlnks

Example

In the following example, the user deletes MFR link 1.1:11.

```
M8850_SF.10.MPSM155[FR].a > delmfrlnk 1.1.11
```

delmpbundle

Delete an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **delmpbundle** command to delete an MLPPP bundle. You must remove all PPP links from the bundle before deleting the bundle.

Syntax

delmpbundle <*bundleNumber*>

Syntax Description

bundleNumber Specifies the MLPPP bundle to delete.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmpbundle, **cnfmpbundle**, **dspmpbundle**

Example

In the following example, the user deletes MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > delmpbundle 5
```

delpart

Delete Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delpart** command to delete a resource partition. Note that you must delete all connections in the resource partition before you delete the partition itself. For information on resource partitions, refer to the description of **addpart**.



Note

The **delpart** and **delrsprtn** commands are identical. The name “delrsprtn” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.

Syntax (ATM Service Context)

```
delpart <if_num> <part_id>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to delete.
Note	The MPSM cards must be in the ATM CLI context if you want to delete a partition from an ATM port.
Note	Enter the dspports command in the ATM CLI context to display the port numbers and partition IDs for all active ATM ports.
<i>part_id</i>	A number that identifies the partition, in the range 1-20.

Syntax (Frame Relay Service Context)

```
delpart <if_num> <ctrlNum>
```

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	Specifies the interface number (partition number) of the partition to delete.
Note	The MPSM cards must be in the Frame Relay CLI context if you want to delete a partition from a Frame Relay port.
Note	Enter the dspparts command in the Frame Relay CLI context to display the all partition and controller numbers associated with Frame Relay ports.
<i>CtrlNum</i>	Identifies the Controller number.

Related Commands

addpart, cnfpart, dsppart

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user enters the **delpart** command to delete the resource partition 1 on port 20.

```
NodeB.6.MPSM155 [ATM] .a > delpart 20 1
```

Example (Frame Relay Service Context)

In the following example, the user enters the **delpart** command to delete the PNNI resource partition on port 2.

```
mpsm_node.5.MPSM155 [FR] .a > delpart 2 2
```

delport

Delete Port

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delport** command to remove a logical ATM or Frame Relay port from the current card. To delete an ATM port, the card must be in the ATM CLI context. To delete a Frame Relay port, the card must be in the Frame Relay CLI context. You must delete all connections and resource partitions on the port before you can delete it.

Syntax

delport <*ifNum*>

Syntax Description

ifNum Identifies the logical interface (port number) that you want to delete.

Note Enter the **dsports** command to display the port numbers for all active ports for the current CLI context.

Related Commands

addport, enfport, dsport, dsports

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user enters the **delport** command to delete port 20.

```
NodeB.6.MPSM155 [ATM] .a > delport 20
```

Example (Frame Relay Service Context)

In the following example, the user enters the **delport** command to delete port 2.

```
mpsm_node.5.MPSM155 [FR] .a > delport 2
```

delppplink

Delete a PPP link from an MLPPP bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **delppplink** command to delete a PPP link from an MLPPP bundle.

Syntax

delppplink <link>

Syntax Description

<i>link</i>	Specifies the number of the PPP link to delete.
Note	Enter the dsppplinks command to display all PPP links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addppplink, **cnfppplink**, **dsppplink**, **dsppplinks**

Example

In the following example, the user deletes PPP link 5 from the MLPPP bundle that contains it.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > delppplink 5
```

delpppmux

Disable PPPMUX on an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **delpppmux** command to disable PPPMUX on an MLPPP bundle.

Syntax

delpppmux *<bundleNumber>*

Syntax Description

<i>bundleNumber</i>	Specifies the MLPPP bundle number for which to disable PPPMUX.
Note	Enter the dspmpbundles command to display all bundles on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addpppmux, **cnfpppmux**, **dspppmux**

Example

In the following example, the user disables PPPMUX on bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR] .a > delpppmux 5
```


delsesn

Delete Session

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

The **delsesn** command lets you terminate one or more user sessions. To display the number of each active session, use the **dspsesn** PXM command. Termination begins with command execution, but before it proceeds, the CLI warns you that the command is destructive. If you proceed with the deletion, the user whose session is being deleted receives the message, "Forced Logout By <userid> !!!!!!!!!!!," where userid is the user running the **delsesn** command. You can delete any user session with this command.

Syntax

```
delsesn [<sesn no> / <sesn no> <sesn no> .... / all]
```

Syntax Description

<i>sesn no</i>	The session number has a range of 1-15. You can specify one session, a series of user sessions, or all user sessions. The dspsesn PXM command displays the user session numbers.
----------------	---

Attributes

Log: yes State: active, standby, init Privilege: SERVICE_GP

Related Commands

who

Example

In the following example, the user deletes session 2.

```
M8850_SF.27.MPSM16T1E1[FR].a > delsesn 2
WARNING! delsesn is a destructive command. it will
non-gracefully delete sessions selected by you.
Make sure the to-be-deleted smTerm is a hang session.
USE shellconn: cliSesnSlot<suspected slot#> on the Active PXM and
the suspected SM slot to map out the hang session(s)
which did not have usrIOQid and inEpid associated
Do you want to proceed ? [y/n]
```

delrscrtn

Delete Resource Partition

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **delrscrtn** command to delete a resource partition. Note that you must delete all connections in the resource partition before you delete the partition itself. For information on resource partitions, refer to the description of **addrscrtn**.



Note

The **delpart** and **delrscrtn** commands are identical. The name “cnfrscrtn” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.

Syntax (ATM Service Context)

```
delrscrtn <if_num> <part_id>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to delete.
Note	The MPSM cards must be in the ATM CLI context if you want to delete a partition from an ATM port.
Note	Enter the dspparts command in the ATM CLI context to display the port numbers and partition IDs for all active ATM ports.
<i>part_id</i>	A number that identifies the partition, in the range 1-20.

Syntax (Frame Relay Service Context)

```
delrscrtn <if_num> <ctrlNum>
```

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	Specifies the interface number (partition number) of the partition to delete.
Note	The MPSM cards must be in the Frame Relay CLI context if you want to delete a partition from a Frame Relay port.
Note	Enter the dspparts command in the Frame Relay CLI context to display the all partition and controller numbers associated with Frame Relay ports.
<i>CtrlNum</i>	Identifies the Controller number.

Related Commands

addrscrtn, dsprscrtns, delpart, addpart, dsppart

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user enters the **delrsprtn** command to delete the resource partition 1 on port 11.

```
NodeB.6.MPSM155 [ATM] .a > delrsprtn 11 1
```

Example (Frame Relay Service Context)

In the following example, the user enters the **delrsprtn** command to delete the PNNI resource partition on controller 2, port 1.

```
mpsm_node.9.MPSM155 [FR] .a > delrsprtn 1 2
```

dnallports

Down All Ports

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dnallports** command to deactivate all ATM ports on the current card. The **dnallports** command is helpful if you want to re-configure resource partitions or change the service class template (SCT).

Syntax

dnallports

Syntax Description

No parameters, but the CLI prompts you to confirm the execution.

Related Commands

upallports

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **dnallports** deactivate all ATM ports on the current card.

```
NodeB.6.MPSM155 [ATM] .a > dnallports
Traffic loss will result on all connections on this port.
Do you want to proceed (Yes/No) ? y
```

dncon

Down Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dncon** command to deactivate (or bring down) a connection so that you can modify the network, troubleshoot the network, or change the current SCT. This command applies to PVCs or SPVCs only.

To activate the connection, use the **upcon** command.

Syntax (ATM Service Context)

```
dncon <ifNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	The interface number (port number) of the connection to bring down.
Note	Use the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) for the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) for the connection.

Syntax (Frame Relay Service Context)

```
dncon <ifNum> <dldci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to bring down.
Note	Use the dspcons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.
<i>dldci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Context)

```
dncon <ifNum> <dldci>
```

Syntax Description (PPP Context)

<i>ifNum</i>	Specifies the interface number (bundle number) of the connection to bring down. <ul style="list-style-type: none"> MPSM-16-T1E1 range: 1-16
Note	Use the dspcons command in the Frame Relay CLI context to display the bundle number and DLCI for all active Frame Relay ports.
<i>dldci</i>	Specifies the Data-Link Connection Identifier. Value: 1000 only for RPM-XF connections.

Attributes

Log: yes State: active Privilege: any

Related Commands

upcon, dspcons

Attributes

Log: yes State: active Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user enters the **dncon** command to bring down connection on port 4, VPI 14, and VCI 100.

```
M8830_CH.12.MPSM155[ATM].a > dncon 4 14 100
```

Example (Frame Relay Service Context)

In the following example, the user enters the **dncon** command to bring down the connection on port 1, DLCI 3.

```
mpsm_node.9.MPSM155[FR].a > dncon 1 3
```

Example (PPP Service Context)

In the following example, the user enters the **dncon** command to bring down the connection on MLPPP bundle 1.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dncon 1 1000
```

dncons

Down Connection

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dncons** command to deactivate (or bring down) a range of connections (*vpi/vci*) so that you can modify or troubleshoot the network. This operation applies to only SPVCs. To reactivate the connections, use **upcon**.

Syntax

```
dncons <ifNum> <vpi> <vci> [-num <num. conns to down>] [-verbose < 1 | 0 >]
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) of the connection to bring down.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) for the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) for the connection.
-num	Specifies the number of connections to take down.
-verbose	Enables or disables verbose mode. In verbose mode, the screen displays the connection identifier of each connection immediately after it is deleted. <ul style="list-style-type: none"> • 1 = Enable • 2 = Disable

Related Commands

upcon, dspscons

Attributes

Log: yes State: active Privilege: CISCO_GP

Example

In the following example, the user brings down two connections on port 1, VPI 4095, VCI 65535.

```
M8830_CH.12.MPSM155 [ATM] .a > dncons 1 4095 65535 -num 2 0
```

dnilmi

Down ILMI

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dnilmi** command to de-activate (down) ILMI on a logical port so you can modify a configuration, troubleshoot, or run certain commands that require ILMI to be inoperative.

Syntax

dnilmi *<ifNum>* *<partId>*

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) on which you want to disable ILMI. Note Use the dspparts command in the ATM CLI context to display the interface number and partition id for all active ATM ports.
<i>partId</i>	Specifies the partition ID, in the range 1–20.

Related Commands

dspilmi, **dspilmis**, **upilmi**

Attributes

Log: yes State: active, standby Privilege: SERVICE_GP

Example

In the following example, the user enters the **dnilmi** command to de-activate ILMI on port 5, partition 1.

```
mpsm_node.5.MPSM155[ATM].a > dnilmi 5 1
Warning: connections (if any) on port could get rerouted.
Do you want to proceed (Yes/No) ? y
```


dnimagrp

Down IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dnimagrp** command to disable an IMA group.

Syntax

dnimagrp <group>

Syntax Description

<i>group</i>	Specifies the IMA group to deactivate.
Note	Enter the dspimagrps command to see a list of all IMA groups on the current card.

Related Commands

addimagrp, delimagrp, dspimagrp, upimagrp

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user disables the IMA group 11, and then enters the **dspimagrps** command to verify that the appropriate IMA group has been brought down.

```
mpsm_node.5.MPSM155 [ATM] .a > dnimagrp 11
Warning: Traffic loss will result on all connections on this IMA group.
Do you want to proceed (Yes/No) ? y
```

dnln

Down Line

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dnln** command to de-activate a line on the current card. Before you can de-activate a line using **dnln**, you must take the following steps:

-
- Step 1 Remove connections. Use the **delcon** or **delcons** command.
 - Step 2 Remove corresponding resource partitions. Use the **dsppart** command to see existing partitions and the **delpart** command to remove partitions.
 - Step 3 Remove all logical ports on the line or path. Use the **dspports** command to see existing logical ports on the line and the **delpport** command to remove logical ports.
 - Step 4 Bring down any paths on the line. Use the **dnpath** or **dnpaths** command.
-

Syntax

dnln <*bay.line*>

Syntax Description

bay.line Identifies the line you want to bring down, in the format *bay.line*.

Note Enter the **dsplns** command to display the line numbers for all lines on the current card.

Related Commands

dspln, **dsplns**, **cnfln**, **upln**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **dnln** command to de-activate line 1 in bay 1.

```
M8850_NY.13.MPSM155 [ATM] .a > dnln 1.1
```

dnmfrbundle

Down a Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dnmfrbundle** command to deactivate an MFR bundle.

Syntax

```
dnmfrbundle <bundleNumber>
```

Syntax Description

bundleNumber Specifies the number of the MFR bundle to bring down.

Note Enter the **dspmfrbundles** command to display all MFR bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

upmfrbundle, **dspmfrbundles**

Example

In the following example, the user brings down MFR bundle 2.

```
M8850_SF.10.MPSM155[FR].a > dnmfrbundle 2
Warning: Traffic loss will result on all connections on this MFR bundle.
Do you want to proceed (Yes/No) ? y
```

dnmpbundle

Bring down an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dnmpbundle** command to change the administrative (and operational) state of an MLPPP bundle to *down*.

Syntax

dnmpbundle <*bundleNumber*>

Syntax Description

bundleNumber Specifies the number of the MLPPP bundle to bring down.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmpbundle, **cnfmpbundle**, **delmpbundle**, **dspmpbundle**

Example

In the following example, the user brings down MLPPP bundle 5.

```
M8850_SF.10.MPSM16T1E1 [FR] .a > dnmpbundle 5
```

dnpath

Down Path

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dnpath** command to deactivate the specified path (*path_num*).

Syntax

dnpath [*-path_filter*] <*path_num*>

Syntax Description

<i>-path_filter</i>	<p>Identifies the path you want to bring down.</p> <p>Possible <i>path_filter</i> keywords are:</p> <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the dnpath command without the <i>-path_filter</i> option, and only STS/STM paths are configured on the card, the STS/STM path with the specified path number is de-activated. If there are DS3 paths configured on the card as well as STS/STM paths, and you do not include the <i>-path_filter</i> option with the dnpath command, the lowest-level path (the DS3 path) is activated. To avoid confusion, Cisco recommends that you specify a <i>-path_filter</i> when you display a path.</p>
<i>path_num</i>	<p>The number of the path to bring down.</p> <p>Note Use the dsppaths <<i>path_filter</i>> command to see the path numbers for the available paths.</p>

Related Commands

uppath

Attributes

Log: yes

State: active

Privilege: GROUP1

Examples

In the following example, the user then enters the **dnpath -sts** command to de-activate the STS path 1.1.0.

```
mpsm_node.11.MPSM155 [ATM] .a > dnpath -sts 1.1.0
```

In the following example, the user then enters the **dnpath -ds3** command to de-activate the T3 path 1.1.2.

```
mpsm_node.11.MPSM155 [FR] .a > dnpath -ds3 1.1.2
```

dnport

Down Port

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dnport** command to deactivate an ATM or Frame Relay port. To bring down an ATM port, the card must be in the ATM CLI context. To bring down a Frame Relay port, the card must be in the Frame Relay CLI context. The usual purpose for using **dnport** is reconfiguration or troubleshooting.

Bringing down a port halts all traffic on the port and causes any connections it supports to fail. PNNI connections reroute through other trunks; UNI connections remain in the failed state until the port is reactivated using **upport**.

Syntax

dnport <*ifNum*>

Syntax Description

ifNum Identifies the interface (port) number that you want to bring down.

Note Enter the **dsports** command to display the port numbers for all active ports in the current CLI context.

Related Commands

dsport, dsports, upport

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **dnport** command to disable port 11 on the current card. When prompted whether or not to proceed, the user enters **y** (for “yes”).

```
NodeB.6.MPSM155 [ATM] .a > dnport 11
Traffic loss will result on all connections on this port.
Do you want to proceed (Yes/No) ? y
```

dnppplink

Bring Down a PPP Link

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dnppplink** command to change the administrative (and operational) state of a PPP link to *down*.

Syntax

dnppplink <link>

Syntax Description

<i>link</i>	Specifies the number of the PPP link to bring down.
-------------	---

Note Enter the **dsppplinks** command to display all MLPPP links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addppplink, **cnfppplink**, **delppplink**, **dsppplink**

Example

In the following example, the user brings down PPP link 6.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dnppplink 6
```


dspadjlalm

Display Adjacent Line Alarms

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspadjlalm** command to display the line alarms for the adjacent back card. This command applies only when adjacent MPSM-T3E3-155 cards are configured as a redundant pair and when a line on the adjacent card protects a line on the working card (inter-card APS).

Syntax

dspadjlalm <*bay.line*>

Syntax Description

bay.line Identifies the line whose redundant line is on the adjacent back card whose line alarm status you want to display, in the format *bay.line*.

Note Use the **dspapls** command to see the line numbers for the working and protection lines.

Related Commands

dspadjlalmcnt, **clradjlnalmcnt**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the alarm status for line 1.1 on the adjacent MPSM-T3E3-155 card.

```
M8850_LA.13.MPSM155[FR].a > dspadjlalm 1.1
Line Number           : 1.1
Section Alarm State   : Clear
Line Alarm State      : Clear
Section Stat Alarm State: TotalSESSs,TotalSEFSSs,TotalCVs
Line Stat Alarm State  : TotalSESSs,TotalUASS
```

dspadjlalmcnt

Display Adjacent Line Alarm Counters

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspadjlalmcnt** command to display the statistics counters for the adjacent back card. This command applies only when adjacent MPSM-T3E3-155 cards are configured as a redundant pair and when a line on the adjacent card protects a line on the working card (inter-card APS).

Syntax

dspadjlalmcnt *<bay.line>* *<intvl>*

Syntax Description

<i>bay.line</i>	Identifies the line whose redundant line is on the adjacent back card whose line alarm counters you want to display, in the format <i>bay.line</i> .
Note	Use the dspapslns command to see the line numbers for the working and protection lines.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Related Commands

dspadjlalm, **clradjalmcnt**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the alarm counters for the adjacent MPSM-T3E3-155 back card.

```
M8850_LA.13.MPSM155[FR].a > dspadjlalmcnt 1.1 1
Line Number      : 1.1
Interval Number  : 1

Section PM:
-----
Num of LOSSs    :      0
Num of LOFs     :      0
ESS             :      0
SESS           :      0
SEFSS          :      0
CVs            :      0

Line PM:
-----
```

Num of AISs	:	0	
Num of RFIs	:	0	
		Near End	Far End
ESs	:	0	0
SESSs	:	0	0
CVs	:	0	0
UASs	:	0	0

dspapsbkplane

Display APS Backplane

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspapsbkplane** command to display whether or not the APS mini-backplane is installed and properly seated with the back cards.

See the **addapsln** command for an explanation of Automatic Protection Switching (APS).

Refer to the *Cisco MGX 8850 Routing Switch Hardware Installation Guide, Release 3* for information about installing the APS assembly on the backplane.

Syntax

dspapsbkplane

Syntax Description

No parameters

Related Commands

addapsln, cnfapsln, delapsln, dspapsln, dspapslns, switchapsln, clrbeent, dspebent

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user executes the **dspapsbkplane** command when an APS assembly is correctly installed to the backplane.

```
M8850_NY.13.MPSM155 [ATM] .a > dspapsbkplane  
Top Bay : APS Back Plane Is Engaged
```

In the following example, the user executes the **dspapsbkplane** command when an APS assembly is not installed or not detected in the backplane.

```
M8850_NY.13.MPSM155 [ATM] .a > dspapsbkplane  
Top Bay : APS Back Plane Not Engaged or Adjacent Back Card Not Present.
```

dspapsln

Display APS Line

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspapsln** command to display the configuration of an APS line. This command can be executed for either a working line or a protection line.

See the **addapsln** command for an explanation of Automatic Protection Switching (APS).



Note

Neither the **dspapsln** nor the **dspapslns** command shows the APS-related mode of an MPSM-T3E3-155 card. To display the APS mode of an MPSM-T3E3-155, enter **dspscd** on the CLI of the MPSM-T3E3-155. The field labeled “FC Operation Mode:” shows “CARD_OPER_MODE_155” when the mode is correct.

Syntax

dspapsln *<working-slot.bay.line>*

Syntax Description

<i>working-slot.bay.line</i>	Identifies the working line you want to display.
------------------------------	--

Note Enter the **dspapslns** command to display all APS lines on the current card.

Related Commands

addapsln, **cnfapsln**, **delapsln**, **dspapslns**, **switchapsln**, **dspapsbkplane**, **clrbcnt**, **dspsbcnt**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the APS configuration for line 1.1 on the MPSM-T3E3-155 in slot 9.

```
M8850_SF.9.MPSM155[FR] .a > dspapsln 9.1.1
Working Index           : 9.1.1           Protection Index       : 9.1.2
Provisioned Arch       : 1:1             Provisioned Direction : bi
Operational Arch      : 1:1             Operational Direction : bi
Active Line           : working           WTR(min)             : 5
SFBer 10^-n          : 3                SDBer 10^-n         : 5
Revertive             : Yes              Last User Switch Req  : Clear
Bridge State          : Released          Selector State        : Released
Working Line State    : OK               Protection Line State : OK
Protocol              : Bellcore-GR253
Alarms                : Clear
Bit Map                :
Req/Chan/Mode         :
External reqField     0x0               NoRequest
```

External	chanField	0x0	Null Channel
Internal	reqField	0x0	NoRequest
Internal	chanField	0x0	Null Channel
Transmit K1	reqField	0x0	NoRequest
Transmit K1	chanField	0x0	Null Channel
Receive K1	reqField	0x0	NoRequest
Receive K1	chanField	0x0	Null Channel
Transmit K2	chanField	0x0	Null Channel
Transmit K2	modeField	0xd	BI 1:1
Receive K2	chanField	0x0	Null Channel
Receive K2	modeField	0xd	BI 1:1

dspapslns

Display APS Lines

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspapslns** command to display all working and protection APS lines on a card. This command can be executed only on an active card. After identifying a particular APS line, you can use **dspapsln** to view details about the line.

See the **addapsln** command for an explanation of Automatic Protection Switching (APS).



Note

Neither the **dspapsln** nor the **dspapslns** command shows the APS-related mode of an MPSM-T3E3-155 card. To display the APS mode of an MPSM-T3E3-155, run **dspscd** on the CLI of the MPSM-T3E3-155. The field labeled “FC Operation Mode:” shows “CARD_OPER_MODE_155” when the mode is correct.

Syntax

dspapslns

Syntax Description

No parameters

Related Commands

addapsln, **cnfapsln**, **delapsln**, **dspapsln**, **switchapsln**, **dspapsbkplane**, **clrbeent**, **dspsbeent**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays all lines with an APS configuration.

```
mpsm_node.5.MPSM155 [ATM] .a > dspapslns
Working Prot.  Conf   Oper   Active  WLine PLine WTR   Revt Conf Oper LastUser  Conf
Index  Index Arch   Arch   Line   State State (min)  Dir  Dir  SwitchReq Protocol
-----  -----  ----  ----  ----  -----  -----  ----  ----  -----  -----
13.1.1  14.1.1 1+1AnxB 1+1AnxB working  OK  SF-L    5  No  bi   bi  No Request  ITU
13.1.2  14.1.2 1+1      1+1    working  OK   OK     5  No  uni  uni  No Request  Bellco
```

dspatmlayer

Display ATM Layer

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspatmlayer** command to display the ATM cell layer parameters for the specified line, path, or IMA group.

Syntax

dspatmlayer <line/path_id/ima_group>

Syntax Description

<i>line/path_id/ima_group</i>	Identifies the line, path, or IMA group whose ATM cell layer parameters you want to display. The line or path must be configured for ATM service before you can view atm layer parameters.
Note	Enter the dsplns , dsppaths , and dspimagrps command in the ATM CLI context to display the lines, paths, or IMA groups configured for ATM service on the current card.

Related Commands

cnfatmlayer

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays ATM cell layer information for IMA group 1.

```
NodeB.6.MPSM155 [ATM] .a > dspatmlayer 1
PathNum  HCScoSet PayloadScramble NullCellHdr NullCellPayload
-----
1.1.1    Enable                Enable  0x00000001                6a
```


dspatmlayercnt

Display ATM Layer Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspatmlayercnt** command to display the ATM cell layer interval counters on the specified line, path or IMA group.

Syntax

```
dspatmlayercnt <line/imagrp> <intvl>
```

Syntax Description

<i>line/imagrp</i>	Identifies the line, path, or IMA group whose ATM cell layer interval counters you want to display.
Note	Enter the dsplns , dsppaths , or dspimagrps command to display all line, paths, or IMA group numbers on the current card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Related Commands

cnfatmlayer

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the ATM cell layer counters for IMA line 1.1 in bay 1.

```
NodeB.6.MPSM155 [ATM].a > dspatmlayercnt 1.1.1 1
Path                : 1.1.1
Interval            : 1

                                Ingress          Egress
CLP0 Cells          : 0                        0
CLP1 Cells          : 0                        0
Valid OAM Cells     : 0                        0
Err OAM Cells       : 0                        0
Rcv Valid RM Cells  : 0                        0
Invalid VPI/VCI/PTI Cells : 0
Rcv Idle Cells      : 0
Non-zero GFC Cells  : 0
Last Unknown VPI    : 0
Last Unknown VCI    : 0
Discard HecErr Cells : 0
Corrected HecErr Cells : 0
```

dspautoIndiag

Display Auto Line Diagnostics

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspautoIndiag** command to display the status of auto line diagnostic feature on card.

Syntax

dspautoIndiag

Syntax Description

No parameters

Related Commands

cnfautolndiag

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the status of the auto line diagnostic features.

```
NodeB.6.MPSM155 [ATM] .a > dspautoIndiag  
Auto Line Diagnostics : Disabled
```

dspautorestart

Display Automatic Restart

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspautorestart** command to display whether the IMA group automatic restart feature is enabled or disabled.

Syntax

dspautorestart

Syntax Description

None.

Related Commands

cnfautorestart

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example

In the following example, the user displays whether the IMA group automatic restart feature is enabled or disabled on the current card.

```
mipsm_node1.9.MPSM155 [ATM] .a > dspautorestart
Autorestart: Disabled
```

dspbecnt

Display Bit Error Count

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspbecnt** command to display the APS-related bit error counters for the last 24 hour, 15 minute, and 15 second intervals.

Syntax

dspbecnt <*working-bay.line*>

Syntax Description

<i>working-bay.line</i>	Identifies the bay and the line number, which is always 1.1 for the MPSM-T3E3-155.
-------------------------	--

Related Commands

addapsln, clrbecnt, cnfapsln, delapsln, dspapsln, dspapslns, switchapsln, dspapsbkplane

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays the APS-related bit error counters on the APS line 1.3.

```
mpsm_node.5.MPSM155[ATM].a > dspbecnt 1.3
Working Section 1 4.1.3      :
  24 Hour Bit Error Count    0
  15 Minute Bit Error Count 130
  15 Second Bit Error Count  0
Working Section 2 5.1.3      :
  24 Hour Bit Error Count    0
  15 Minute Bit Error Count 30413
  15 Second Bit Error Count 2307
```

dspbert

Display Bit Error Rate Test

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspbert** command to display the status, configuration, and data for the current Bit Error Rate Test (BERT). Before you can display BERT capabilities, you must add a BERT session to the desired line, path, or port using the **addbert** command.

This command displays the following information:

- Port number hosting the BERT session
- Whether the BERT session is administratively up or down
- The current operational status of the BERT session
- Type of test (BERT pattern)
- Whether and how many times errors were injected into the BERT session
- Whether the transmit pattern is inverted or not inverted
- Whether the receive pattern is inverted or not inverted
- The current loopback code on the BERT session
- Date and time when the BERT session was started for the specified port.

Syntax

dspbert <bertIfNum>

Syntax Description

bertIfNum Identifies the line, path or port for which you want display BERT data.

Note Enter the **dspberts** command to display a list of all lines, paths, or ports configured for a bert session.

Related Commands

dspbertstats

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays data for the current BERT on the Frame Relay port 113.

```
NodeB.6.MPSM155[FR].a > dspbert 113
BertIfNum       : 113
BERT Admin Status : Up
Operational Status : OutOfSync
BERT Pattern    : AllZeros
Error Insertion Rate: NoError
Tx Pattern Invert : NotInverted
Rx Pattern Invert : NotInverted
Loopback Code   : noLoopbackCode
Start Date      : Nov 23 2003 00:20:52
```

dspbertcap

Display Bit Error Rate Test Capabilities

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspbertcap** command to display the BERT and loopback capabilities of the specified line, path, or port. The numbers in the **dspbertcap** output are the possible pattern or loopback numbers the **cnfbert** command can use. Before you can display BERT capabilities, you must add a BERT session to the desired line, path, or port using the **addbert** command.

Syntax

```
dspbertcap <bertIfNum> [<Test Option>]
```

Syntax Description

<i>bertIfNum</i>	Identifies the line, path, or port for which you want display BERT capabilities. Note Enter the dspberts command to display a list of all lines, paths, or ports configured for a bert session.
<i>Test Option</i>	Limit the display to a specific type of capability. <ul style="list-style-type: none"> • 1 = BERT • 2 = Loopback.

Related Commands

cnfbert, dspbert, dspberts

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the BERT capabilities of line 1.1.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspbertcap 1.1
Test Patterns supported:
-----
1: AllZeros            2: AllOnes
3: AltOneZero        4: DoubleAltOnesZeros
5: OneIn4            6: OneIn8
7: OneIn16           8: ThreeIn24
11: TwoE3MinusOne    12: TwoE4MinusOne
13: TwoE5MinusOne    14: TwoE6MinusOne
15: TwoE7MinusOne    18: TwoE9MinusOne
19: TwoE10MinusOne   20: TwoE11MinusOne
21: TwoE15MinusOne   22: TwoE17MinusOne
23: TwoE18MinusOne   25: TwoE20MinusOneQRSS
26: TwoE21MinusOne   27: TwoE22MinusOne
28: TwoE23MinusOne   29: TwoE25MinusOne
30: TwoE28MinusOne   31: TwoE29MinusOne
32: TwoE31MinusOne
```

```
Loopback Codes supported:  
-----  
15: noLoopbackCode
```


dspberts

Display Bit Error Rate Test Sessions

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspberts** command to display summary information for all BERT sessions.

Syntax

dspberts

Syntax Description

None.

Related Commands

cnfbert, **dspbert**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays configuration information for all BERT sessions.

```
mpsm_node1.3.MPSM155 [FR] .a > dspberts
```

Bert IfNum	Test Pattern	Loopback Code	Admin Status	Oper Status
1.1.1:1	AllZeros	noLoopbackCode	Down	OutOfSync
113	AllOnes	noLoopbackCode	Down	OutOfSync

dspbertstat

Display Bit Error Rate Test Statistics

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspbertstat** command to display the BERT (bit error rate test) statistics for the specified line, path, or port on the current card.

Syntax

dspbertstat <bertIfNum>

Syntax Description

bertIfNum Identifies the line, path, or port for which you want display BERT test statistics.

Note Enter the **dspberts** command to display a list of all lines, paths, or ports configured for a bert session.

Related Commands

dspbert

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the bit error rate test statistics for port 113.

```
mpsm_node1.3.MPSM155 [FR] .a > dspbertstat 113
  Bert      Bits      Bit Errors  Single Bit
  IfNum     Received   Received   Errors Injected
  -----
           113     200000000         40             0
```

dspcd

Display Card

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcd** command to display details about the current card.

A list of information in the **dspcd** output follows:

- Front and back card types.
- Front and back card status.
- Serial numbers.
- Boot firmware revision numbers. (See the **loadrev** description for an explanation of how to interpret the revision field.)
- Software and hardware revision on both front and back cards.
- Orderable and PCA part numbers.
- The CLEI Code.
- The reason for the last card reset.
- The card's current SCT ID.
- A list of features enabled on the card.
- A count of configured lines, ports, partitions, connections, groups, bundles, and links.
- The current front card operational mode.
- First available port number.

The **dspcd** display shows the physical lines that constitute a *port group* and the maximum number of connections in that port group. A port group consists of one to many physical lines. This maximum connection count is a function of the line type (OC-3, STS, and so on). The port group information also shows the number of existing SVCs, SPVCs, and SPVPs. This part of the **dspcd** output can help you configure resource partitions by showing the maximum number of supported connections. If a particular resource partition has close to the maximum supported by hardware on a line, few or no connections would be possible in another partition on the same line.



Note

The total number of connections in the **dspcd** output includes *control* VCs. The types of control VCs are SSCOP, PNNI-RCC, and ILMI (if ILMI is enabled). To see connection counts that do not include control VCs, enter the **dsppnport** on the PXM card.

Syntax

dspcd

Syntax Description

No parameters

Related Commands

dspcds, **dspversion**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (MPSM-T3E3-155)

In the following example, the user displays card information for the MPSM-T3E3-155.

```
M8850_SF.9.MPSM155[FR].a > dspcd
      Front Card          Back Card
      -----
Card Type:      MPSM-T3E3-155      SMB-2-155-EL
State:         Active             Present
Serial Number: SAD081601UM        SAD073001NN
Boot FW Rev:   5.1(0.200)         ---
SW Rev:        5.1(0.200)         ---
HW Rev:        02                  02
Orderable Part#: 800-23005-06      800-23171-02
PCA Part#:     73-8597-06          73-8685-02
CLEI Code:     0                   0
Reset Reason:  Reset from PXM
Card Summary:
Card SCT Id:   0
Features Enabled: ATM, FRAME RELAY
#Max ATM Conns #ATM Ports #ATM Partitions #ATM SPVCs #ATM SPVPs #ATM SVCs
-----
          4000          2          2          0          0          0
#Max FR Conns #FR Ports #FR Partitions #FR SPVCs
-----
          4000          2          2          1
#IMA Groups #IMA Links #MFR Bundles #MFR Links
-----
          2          2          1          1
Type <CR> to continue, Q<CR> to stop:
-----
          2          2          1          1

FC Operation Mode:  CARD_OPER_MODE_155

First Available Port Number:  5
```

Example (MPSM-16-T1E1)

In the following example, the user displays card information for an MPSM-16-T1E1 in the Multilink PPP mode.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspcd
      Front Card          Back Card
      -----
Card Type:      MPSM-16-T1E1-PPP      MCC-16-E1
State:         Active             Present
Serial Number: SAD08230866          SAG05477CBN
Boot FW Rev:   5.1(0.200)         ---
SW Rev:        5.1(0.200)         ---
HW Rev:        02                  02
Orderable Part#: 800-22339-07      800-19853-01
PCA Part#:     73-8427-07          73-7664-01
CLEI Code:     0                   0
Reset Reason:  Reset from PXM
Card Summary:
Card SCT Id:   0
Features Enabled: FRAME RELAY
```

```
#Max ATM Conns #ATM Ports #ATM Partitions #ATM SPVCs #ATM SPVPs #ATM SVCs
-----
          2000          0          0          0          0          0
#Max FR Conns #FR Ports #FR Partitions #FR SPVCs
-----
          2000          2          2          1
#IMA Groups #IMA Links #MP Bundles #PPP Links

Type <CR> to continue, Q<CR> to stop:
-----
          0          0          2          8

FC Operation Mode:  CARD_OPER_MODE_E1_MCC

First Available Port Number:  4
```

dspcdsct

Display Card SCT

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcdsct** command to display the contents of a card-level Service Class Template (SCT) file. For information about SCTs, see the **cnfcdsct** description. To display the number of the current SCT for the card, use **dspscd**. The examples in this description illustrate the contents of SCT number 2 and SCT 3.



Note

Currently, the system does not support certain parameters in the service class templates (SCTs), so you can specify them through **addcon**, **cnfcon**, or Cisco WAN Manager. These parameters are (when applicable) PCR, SCR, and ICR.

Syntax (ATM Service Context)

```
dspcdsct { gen | cosThr | vcThr } [-units <units>]
```

Syntax Description (ATM Service Context)

gen vcThr cosThr	An aspect of the SCT to display: <ul style="list-style-type: none"> • gen = policing and Connection Admission Control (CAC) • vcThr = ATM VC thresholds • cosThr = class of service thresholds
-units	Optional keyword which specifies the display units, in one of the following formats: <ul style="list-style-type: none"> • time = units in time or 0.0001% of max (default) • cellbyte = units in cells or bytes

Syntax (Frame Relay Service Context)

```
dspcdsct { gen | vcFR | cosThr } [-units <units>]
```

Syntax Description (Frame Relay Service Context)

gen vcFR cosThr	An aspect of the SCT to display: <ul style="list-style-type: none"> • gen—policing and Connection Admission Control (CAC) • vcFR—Frame Relay VC thresholds • cosThr—class of service thresholds
-units	Optional keyword which specifies the display units, in one of the following formats: <ul style="list-style-type: none"> • time = units in time or 0.0001% of max (default) • cellbyte = units in cells or bytes

Related Commands

cnfcdsct, dspset

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all parameters for the default SCT (SCT 0). Each display consists of one member of the SCT parameter group. The screen examples show the SCT ID that the user has displayed (the command itself does not require the SCT ID because it is card-level).

```
NodeB.6.MPSM155 [ATM] .a > dspcdsct gen
+-----+
| Service Class Template [ 0] : General Parameters |
| Major Version [ 1]          : Minor Version [ 0]  |
+-----+
| SERV-TYPE (HEX) | COSB_NUM |
+-----+
|   ATMF_CBR1(100) |    2 |
|   ATMF_VBRrt1(101) |    5 |
|   ATMF_VBRrt2(102) |    5 |
|   ATMF_VBRrt3(103) |    5 |
|   ATMF_VBRnrt1(104) |    9 |
|   ATMF_VBRnrt2(105) |    9 |
|   ATMF_VBRnrt3(106) |    9 |
|   ATMF_UBR1(107) |   13 |
|   ATMF_UBR2(108) |   13 |
|   ATMF_ABR(109) |   10 |
|   ATMF_CBR2(10a) |    2 |
|   ATMF_CBR3(10b) |    2 |
|   FR_ATMCBR(502) |    2 |
|   FR_ATMVBRrt(503) |    5 |
|   FR_ATMVBRnrt(504) |    9 |
|   FR_ATMABR(505) |   10 |
|   FR_ATMUBR(506) |   13 |
+-----+
```

In the following example, the user displays the Class of Service threshold parameters for SCT 0.

```
NodeB.6.MPSM155 [ATM] .a > dspcdsct cosThr
+-----+
| Service Class Template [ 0] : COSB Threshold Parameters |
| Major Version [ 1]          : Minor Version [ 0]  |
+-----+
| COSB | MAX_THR |
|      | (uSec) |
+-----+
| 1 | 10000 |
| 2 | 20000 |
| 3 | 30000 |
| 4 | 40000 |
| 5 | 40000 |
| 6 | 40000 |
| 7 | 40000 |
| 8 | 40000 |
| 9 | 40000 |
|10 | 40000 |
|11 | 40000 |
```

```

| 12 | 40000 |
| 13 | 40000 |
| 14 | 40000 |
| 15 | 40000 |
| 16 | 40000 |
+-----+

```

In the following example, the user displays the VC Threshold arguments for SCT 0.

```

mpsm_node.3.MPSM155[ATM].a > dspcdsct vcThr
+-----+
| Service Class Template [ 0] : VC Threshold Parameters |
| Major Version [ 1]          : Minor Version [ 0]      |
+-----+
| SERV TYPE(DEC) | MAX_CELL | EFCI | CLPlo/EPD1 | CLPhi | EPD0 |
|                | THR(uSec) | (0.0001%) | (0.0001%) | (0.0001%) |
| (0.0001%) |
+-----+
| ATMF_CBR1( 256) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRrt1( 257) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRrt2( 258) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRrt3( 259) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRnrt1( 260) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRnrt2( 261) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_VBRnrt3( 262) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_UBR1( 263) | 424 | 700000 | 300000 | 500000 | 700000 |
| ATMF_UBR2( 264) | 424 | 700000 | 300000 | 500000 | 700000 |
| ATMF_ABR( 265) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_CBR2( 266) | 424 | 700000 | 400000 | 600000 | 800000 |
| ATMF_CBR3( 267) | 424 | 700000 | 400000 | 600000 | 800000 |
+-----+
| SERV TYPE(DEC) | PKT DISCARD | ABR_CNG_THR |
+-----+
Type <CR> to continue, Q<CR> to stop:
|                | MODE | (0.0001%) |
+-----+
| ATMF_CBR1( 256) | DISABLED | |
| ATMF_VBRrt1( 257) | DISABLED |
| ATMF_VBRrt2( 258) | DISABLED |
| ATMF_VBRrt3( 259) | DISABLED |
| ATMF_VBRnrt1( 260) | DISABLED |
| ATMF_VBRnrt2( 261) | DISABLED |
| ATMF_VBRnrt3( 262) | DISABLED |
| ATMF_UBR1( 263) | DISABLED |
| ATMF_UBR2( 264) | DISABLED |
| ATMF_ABR( 265) | DISABLED | 500000 |
| ATMF_CBR2( 266) | DISABLED |
| ATMF_CBR3( 267) | DISABLED |
+-----+

```


Example (Frame Relay Service Context)

In the following example, the user displays all parameters for the default SCT (SCT 0). Each display consists of one member of the SCT parameter group. The screen examples show the SCT ID that the user has displayed (the command itself does not require the SCT ID because it is card-level).

```
mpsm_node.3.MPSM155[FR].a > dspcdsct gen
+-----+
| Service Class Template [ 0] : General Parameters |
| Major Version [ 1]          : Minor Version [ 0] |
+-----+
| SERV-TYPE (HEX) | COSB_NUM |
+-----+
|   ATMF_CBR1(100) |    2 |
|   ATMF_VBRrt1(101) |    5 |
|   ATMF_VBRrt2(102) |    5 |
|   ATMF_VBRrt3(103) |    5 |
|   ATMF_VBRnrt1(104) |    9 |
|   ATMF_VBRnrt2(105) |    9 |
|   ATMF_VBRnrt3(106) |    9 |
|   ATMF_UBR1(107) |   13 |
|   ATMF_UBR2(108) |   13 |
|   ATMF_ABR(109) |   10 |
|   ATMF_CBR2(10a) |    2 |
|   ATMF_CBR3(10b) |    2 |
|   FR_ATMCBR(502) |    2 |
|   FR_ATMVBRrt(503) |    5 |
|   FR_ATMVBRnrt(504) |    9 |
|   FR_ATMABR(505) |   10 |
|   FR_ATMUBR(506) |   13 |
+-----+
```

In the following example, the user displays the Class of Service threshold parameters for SCT 0.

```
mpsm_node.3.MPSM155[FR].a > dspcdsct cosThr
+-----+
| Service Class Template [ 0] : COSB Threshold Parameters |
| Major Version [ 1]          : Minor Version [ 0] |
+-----+
| COSB | MAX_THR |
|      | (uSec) |
+-----+
| 1 | 10000 |
| 2 | 20000 |
| 3 | 30000 |
| 4 | 40000 |
| 5 | 40000 |
| 6 | 40000 |
| 7 | 40000 |
| 8 | 40000 |
| 9 | 40000 |
|10 | 40000 |
|11 | 40000 |
|12 | 40000 |
|13 | 40000 |
|14 | 40000 |
|15 | 40000 |
|16 | 40000 |
+-----+
```

In the following example, the user displays the VC Frame Relay arguments for SCT 0.

```
mpsm_node.3.MPSM155[FR].a > dspcdsct vcFR
```

```
+-----+
| SCT [ 0] : Interworking and Congestion Control Parameters |
+-----+
| SERV TYPE (DEC) | MAX Th | FECN | DE |
|                 | MILLSEC | 0.0001% | 0.0001% |
+-----+
| FR_ATMCBR (1282) | 3 | 103227 | 499992 |
| FR_ATMVBRrt (1283) | 3 | 103227 | 499992 |
| FR_ATMVBRnrt (1284) | 3 | 103227 | 499992 |
| FR_ATMABR (1285) | 3 | 103227 | 499992 |
| FR_ATMUBR (1286) | 3 | 103227 | 499992 |
+-----+
```

dspcdstatcnf

Display Card Statistics Configuration

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcdstatcnf** command to display the TFTP bucket statistics settings. TFTP bucket statistics are used to control the generation of files (that contain statistics) that are transferred to the Cisco WAN Manager (CWM) using the FTP protocol.

Syntax

dspcdstatcnf

Syntax Description

No parameters

Related Commands

None.

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays the TFTP bucket statistics settings.

```
M8850_SF.27.MPSM16T1E1 [FR] .a > dspcdstatcnf
Bucket Interval      : zero
Collection Interval  : default
Stats Level          : disable
```

dspcduptime

Display Card Up Time

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcduptime** command to display how long the card has been in the Up state.

Syntax

dspcduptime

Syntax Description

None.

Related Commands

None.

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays the TFTP bucket statistics settings.

```
M8850_SF.10.MPSM155 [ATM] .a > dspcduptime  
12 Days 19 Hours 59 Minutes 37 Seconds
```

dspchancnt

Display Channel Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspchancnt** command to display the statistical counters for a connection (channel). See the **cnfdiag** command for a detailed description of the related diagnostics.

Syntax (ATM Service Context)

```
dspchancnt <ifNum> <vpi> <vci> -r <dsp interval> -max <max dsp time>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the channel statistics to display.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM channels.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) for the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) for the connection.
-r	Refreshes the display periodically, in the range 0–60 seconds.
-max	Specifies the maximum time to periodically refresh the display, before returning to the command prompt. The range is 0–300 seconds. Default: 20 seconds

Syntax (Frame Relay Service Context)

```
dspchancnt <ifNum> <dlci> -r <dsp interval> -max <max dsp time>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the channel statistics to display.
Note	Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.
-r	The display interval in which to display the channel statistics. Range: 0–60 seconds.
-max	The duration of time to display the channel statistics in the range of 0–3600 seconds. Note The default is 20 seconds.

Syntax (PPP Service Context)

```
dspchancnt <ifNum> <dlci> -r <dsp interval> -max <max dsp time>
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (MLPPP bundle number) for which to display statistics. Note Use the dspscons command to display the bundle number and DLCI for all active MLPPP bundles.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.
-r	The display interval in which to display the channel statistics. Range: 0–60 seconds.
-max	The duration of time to display the channel statistics in the range of 0–3600 seconds. Note The default is 20 seconds.

Related Commands

clrchancnt, dspsdnt

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays channel counters for port 17, VPI 44, VCI 55.

```
M8850_SF.10.MPSM155[ATM].a > dspschancnt 17 44 55
      Ingress chan stat
-----
All non-compliant cells           : 0
CLP1 non-compliant                : 0
CLP0 non-compliant                : 0
CLP0 -> CLP1                     : 0
Cells from port
(Before policing)                 : 0
CLP0 from port                    : 0
CLP1 from port                    : 0
EOF from port                     : 0
EFCI1 from port                   : 0
Cells to network                  : 0
CLP0 to network                   : 0
CLP1 to network                   : 0
EFCI1 to network                  : 0
CLP0 congestion discards          : 0
CLP1 congestion discards          : 0
ABR CRC error from port           : 0
ABR FRM cells from port           : 0
ABR BRM cells from port           : 0
ABR FRM NTA cells from port       : 0
ABR FRM cells to network          : 0
ABR BRM cells to network          : 0
      Egress chan stat
-----
```

```

Cells to port                : 0
CLP0 to port                 : 0
CLP1 to port                 : 0
EOF to port                  : 0
EFCI1 to port                : 0
RM to port                   : 0
Cells from network           : 0
CLP0 from network            : 0
CLP1 from network            : 0
EFCI1 from network           : 0
CLP0 congestion discards     : 0
CLP1 congestion discards     : 0
ABR FRM cells to port        : 0
ABR BRM cells to port        : 0
ABR CRC error from network   : 0
ABR FRM cells from network   : 0
ABR BRM cells from network   : 0
ABR FRM NTA cells from network : 0

```

Example (Frame Relay Service Context)

In the following example, the user displays channel counters for port 5, DLCI 500.

```

M8850_SF.27.MPSM16T1E1[FR].a > dspchanct 5 500
-----
Port Number                :          5  DLCI                :          500
Up Time (seconds)          :          242905
-----
                Ingress chan stat
-----
Rcv Frames                  : 0
Rcv Bytes                   : 0
Rcv Frames Discard          : 0
Rcv Bytes Discard           : 0
Rcv Frames DE               : 0
Rcv Bytes DE                : 0
Rcv Frames FECN             : 0
Rcv Frames BECN             : 0
Rcv Frames Tagged FECN     : 0
Rcv Frames Tagged BECN     : 0
Rcv Frames Tagged DE       : 0
Rcv Bytes Tagged DE        : 0
Rcv Kbps AIR                : 0
Rcv Frames Unknown Protocols : 0
Rcv Frames Exceed QDepth   : 0
Rcv Bytes Exceed QDepth    : 0

Type <CR> to continue, Q<CR> to stop:
Rcv Frames Exceed DE Threshold : 0
Rcv Frames UPC                  : 0
                Egress chan stat
-----
Xmt Frames                  : 0
Xmt Bytes                   : 0
Xmt Frames Discard          : 0
Xmt Bytes Discard           : 0
Xmt Frames DE               : 0
Xmt Bytes DE                : 0
Xmt Frames FECN             : 0
Xmt Frames BECN             : 0
Xmt Frames Tagged FECN     : 0
Xmt Frames Tagged BECN     : 0

```

```

Xmt Frames Tagged DE          : 0
Xmt Bytes Tagged DE          : 0
Xmt Kbps AIR                  : 0
Xmt Frames Unknown Protocols : 0
Xmt Frames CRC Error         : 0
Xmt Frames Reassembly Fail   : 0
Xmt Frames Source Abort      : 0
Xmt Frames Invalid CPis      : 0

```

Type <CR> to continue, Q<CR> to stop:

```

Xmt Frames Length Violations : 0
Xmt Frames Oversized SDUs    : 0
Xmt Frames Exceed QDepth     : 0
Xmt Bytes Exceed QDepth      : 0
Xmt Frames Exceed DThreshold : 0
Xmt Bytes DE Discard         : 0
Xmt Frames on LMI Alarm      : 0
Xmt Bytes on LMI Alarm       : 0

```

AAL5 statistics

```

-----
Rcv AAL5 frames              : 0
Rcv CLP0 cells               : 0
Rcv CLP1 cells               : 0
Xmt AAL5 frames              : 0
Xmt CLP0 cells               : 0
Xmt CLP1 cells               : 0

```

OAM statistics

```

-----
Rcv OAM Seg Lpbk Cells      : 0
Rcv OAM E2E Lpbk Cells     : 0
Xmt OAM Seg Lpbk Cells     : 0
Xmt OAM E2E Lpbk Cells     : 0

```

Type <CR> to continue, Q<CR> to stop:

ABR statistics

```

-----
Xmt FRM cells to network    : 1
Xmt BRM cells to network    : 1
Rcv FRM cells from network  : 1
Rcv BRM cells from network  : 1

```

Example (PPP Service Context)

In the following example, the user displays channel counters for MLPPP bundle 5, DLCI 1000.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspchancnt 5 1000
```

```

-----
Port Number          :          5  DLCI          :          1000
Up Time (seconds)    :          0

```

Ingress chan stat

```

-----
Rcv Frames           : 253828
Rcv Frames Discard   : 0

```

Egress chan stat

```

-----
Xmt Frames           : 253827
Xmt Frames Discard   : 0
Xmt Frames CRC Error : 0

```


dspchanloop

Display Channel Loop

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspchanloop** command to display channel loopback information.

Syntax (ATM Service Context)

```
dspchanloop <IfNum>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the channel to display.
Note	Use the dsports command to display the port numbers for all active channels in the current CLI context.

Related Commands

addchanloop, **delchanloop**

Attributes

Log: yes State: active Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user displays loopback information for port 12.

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dspchanloop 12
Loop Back Connections on Interface 12
Conn LCN  ifNum  Vpi   Vci  Lpbk Type
      98      12   35   120   Local (Egr)
```

Example (Frame Relay Service Context)

In the following example, the user displays loopback information for port 5.

```
M8850_SF.27.MPSM16T1E1 [FR] .a > dspchanloop 5

Loop Back Connections on Interface 5
Conn LCN  ifNum      Dlci
      110      5           500
```

dspchanstdabr

Display Standard ABR Connection Parameters

Service Context—Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspchanstdabr** command to display the configured settings for the standard ABR arguments on the specified connection.

Syntax

```
dspchanstdabr <ifNum> <dcli>
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) of the available bit rate (ABR) channel to display.
Note	Use the dspscons command in the Frame Relay context to display the interface number and DLCI for all active Frame Relay channels.
<i>dcli</i>	Specifies the Data-Link Connection Identifier.

Related Commands

cnfchanstdabr

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays the configured settings for the standard ABR connection on Frame Relay on port 5, DLCI 500.

```
M8850_SF.27.MPSM16T1E1[FR].a > dspchanstdabr 5 500
-----
Local      :                NSAP Address                vpi      vci
(S)        47009181000000000164444B610000011B1FFF00      8        500
Remote    :                NSAP Address                vpi      vci
(M)        47009181000000000164444B610000011B1FFF00     10       600
-----
Port Number      : 5                DLCI           : 500
-----
Internal VSVD config      :          VSVD on
External VSVD config     :          VSVD off
Transient Buffer Exposure (TBE) : 1048320      cells
Fixed Round Trip Delay   (FRTT) : 0              milli seconds
Rate Decrease Factor     (RDF)  : 1024
Rate Increase Factor     (RIF)  : 512
Cells per forward RM     (NRM)  : 32
Time between forward RM  (TRM)  : 100              milli seconds
Cutoff Decrease Factor   (CDF)  : 1
ACR Decrease Factor      (ADTF) : 10000           milli seconds
```

```
Initial Cell Rate      (ICR) : 5760      cells/second
Minimum Cell Rate     (MCR) : 5760      cells/second
Peak Cell Rate        (PCR) : 5760      cells/second
-----
```

dspchantests

Display Channel Tests

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspchantests** command to display the results of path tests that were previously performed, such as **tstdelay** and **tstconseq**. The **tstdelay** and **tstconseq** commands test the integrity of the path of a connection.



Note

The **tstdelay** command runs in both the ATM and Frame Relay CLI contexts. The **tstconseq** command runs in the ATM CLI context only.

Syntax (ATM Service Context)

```
dspchantests <ifNum> <vpi> <vci> [-num <count>]
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the channel (connection) for which you want path test results.
	Note Use the dsprcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM ports.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.
-num	(Optional) A keyword that indicates the number of connections you want to display.

Syntax (Frame Relay Service Context)

```
dspchantests <ifNum> <dlci> [-num <count>]
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the channel for which you want path test results.
	Note Use the dsprcons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.
<i>dlci</i>	Specifies the Data-Link Connection Identifier for the connection.
-num	The number of connections that you want to display.

Syntax (PPP Service Context)

```
dspchantests <ifNum> <dLci> [-num <count>]
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (MLPPP bundle number) of the channel for which you want path test results.
Note	Use the dspcons command to display the port number and DLCI for all active MLPPP channels.
<i>dLci</i>	Specifies the Data-Link Connection Identifier. Value: 1000 for RPM-XF channels.
-num	The number of connections that you want to display.

Related Commands

tstdelay, **tstconseg**, **dspcon**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the results of a previously-run **tstdelay** command on the ATM port 1, VPI 10, and VCI 100.

```
M8850_SF.10.MPSM155[ATM].a > dspchantests 17 44 55
Connection Id   Test Type   Direction   Result      Round Trip Delay
=====
17.0044.00055:  OAM Lpbk   ingress     Success     166 microsec
```

Example (Frame Relay Service Context)

In the following example, the user displays the results of a previously-run **tstdelay** command on the Frame Relay port 5, DLCI 500.

```
M8850_SF.27.MPSM16T1E1[FR].a > dspchantests 5 500
Connection Id   Test Type   Result      Round Trip Delay
=====
05.0000500     Test Delay   Passed      178 microsec
```

Example (PPP Service Context)

In the following example, the user displays the results of a previously-run **tstdelay** command on the MLPPP bundle 5, DLCI 1000.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspchantests 5 1000
Connection Id   Test Type   Result      Round Trip Delay
=====
05.0001000     Test Delay   Passed      293 microsec
```

dspclctx

Display CLI Context

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspclctx** command to display the default CLI service context. To change the default context, enter the **cnfclctx** command. To change the current context, enter the **setctx** command.

Syntax

dspclctx

Related Commands

cnfclctx, **setctx**

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the default CLI service context. In the following example, the default CLI context is ATM, but the current context is FR.

```
M8850_NY.13.MPSM155[FR].a > dspclctx
This card's default service context is: ATM
```

dspcon

Display Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcon** command to display configuration and status information about a specific connection.

Most of the information in the **dspcon** output comes from **addcon** execution. See the **addcon** description for more information. Also, executing **cnfpnni-intf** on the PXM can affect the **dspcon** output.

Syntax (ATM Service Context)

dspcon <ifNum> <vpi> <vci>

Syntax Description (ATM Service Context)

<i>ifNum</i>	Interface number (port number) of the connection to display. Note Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.

Syntax (Frame Relay Service Context)

dspcon <ifNum> <dlci>

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to display. Note Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay ports.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Context)

dspcon <ifNum> <dlci>

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (bundle number) of the connection to display. Note Use the dspscons command to display the port number and DLCI for all active MLPPP channels.
<i>dlci</i>	Specifies the Data-Link Connection Identifier. Use 1000 for RPM-XF connections.

Attributes

Log: no State: active Privilege: any

Related Commands

addcon, dspcons, cnfcon

Attributes

Log: no State: active Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user displays ATM connection 17, VPI 44, VCI 55.

```
M8850_SF.10.MPSM155[ATM].a > dspcon 17 44 55
-----
Local   :          NSAP Address          vpi   vci
(S)     47009181000000000164444B610000010A181100    44    55
Remote  :          NSAP Address          vpi   vci
(M)     47009181000000000164444B610000010A181200    45    56
-----
Conn. Type   :          VCC                Admn Status :    ADMN-UP
Service Type :    abrstd                Oper Status  :          OK
Controller   :          2                  Record #    :          1
SlavePersist :          N/A                Cast-type   :          N/A
-----
Local PCR    :          50                Remote PCR   :          50
Local SCR    :          N/A                Remote SCR   :          N/A
Local CDV    :          N/A                Remote CDV   :          N/A
Local CTD    :          N/A                Remote CTD   :          N/A
Local MBS    :          N/A                Remote MBS   :          N/A
Max Cost     :          N/A                Frame discard:          N/A
Local CDVT   :          250000            OAM segment :    ENABLED
Local PctUtil :          100              Rmt PctUtil :          100
Priority      :    N/A
Pref Rte Id  :          N/A                Directed route:          N/A
-----
Type <CR> to continue, Q<CR> to stop:
OAM CC Config :    DISABLED                Statistics   :    ENABLED
-----
Loopback Type :    OAM Lpbk | Dir: ingress | Status: Success | RTD:    166us
-----

-----
Port side Tx :    normal                Swth side Tx :    normal
Port side Rx :    normal                Swth side Rx :    normal
-----
I-AIS/RDI    E-AIS/RDI    CONDITIONED  CCFAIL    IfFail    Mismatch    LMI-ABIT
   NO          NO          NO          NO          NO          NO          NO
-----
Internal VSVD config :    VSVD off
External VSVD config :    VSVD off
Local MCR             :          50 cells/second
Remote MCR            :          50 cells/second
Initial cell rate     (ICR) :          100 cells/second
ACR decrease factor   (ADTF) :          50 x 10 millise
```



```

Rate decrease factor      (RDF) :          4
Rate increase factor     (RIF) :          7
Cells per forward RM     (NRM) :          5
Time between forward RM  (TRM) :          8

Type <CR> to continue, Q<CR> to stop:
cutoff decrease factor   (CDF) :          1
fixed round trip delay   (FRTT) :          0 microseconds
transient buffer exposure (TBE) :    1048320 cells
-----

```

Example (Frame Relay Service Context)

In the following example, the user displays the Frame Relay connection on port 11, DLCI 150.

```

M8850_SF.27.MPSM16T1E1[FR].a > dspcon 11 150
-----
Local   :          NSAP Address          vpi    vci
(M)     47009181000000000164444B610000011B1FFF00      20     150
Remote  :          NSAP Address          vpi    vci
(S)     47009181000000000164444B610000010A1FFF00      28     150
-----
Port Number      : 11                    DLCI           : 150
Conn. Type       : frNIW                  Chan Service Type: High Priority
Conn Service Type : cbr1                  Egress Queue Type: highPriority
Admn Status      : UP                     Oper Status     : OK
Slave Persist    : YES                    Max Cost        : -1
CIR (bps)        : 1536000                BC (bytes)      : 5100
BE (bytes)       : 5100                    FECN Config     : setEFCIzero
ChanDEtoCLPmap   : mapCLP                 ChanCLPtoDEmap  : mapDE
IngrPercentUtil  : 100                     EgrPercentUtil  : 100
EgrSrvRate (bps) : 1536000                ZeroCirEir (bps) : N/A
DE Tagging       : DISABLED                IgnoreIncomingDE : DISABLED
Pref Rte Id      : 0                       Directed Route   : NO
Upload           : 00000019                Routing Priority : 8
OAM CC Config    : DISABLED                Statistics       : ENABLED
Local Loopback   : DISABLED                UPC              : ENABLED
-----
Type <CR> to continue, Q<CR> to stop:
Local PCR (cps)   : 5760                    Remote PCR (cps) : 5760
Local SCR (cps)   : N/A                     Remote SCR (cps) : N/A
Local MCR (cps)   : N/A                     Remote MCR (cps) : N/A
                  :                          Remote MBS (cps) : N/A
-----
Xmt Abit State    : A equal 1                Rcv Abit State   : OFF
Xmt ATM State     : Not Sending              Rcv ATM State    : Not Recving
-----
E-AIS/RDI    CONDITIONED  CCFAIL  IfFail  Mismatch  LMI-ABIT
NO           NO          NO       NO      NO        NO
-----

```

Example (PPP Context)

In the following example, the user displays connection information for MLPPP bundle 5.

```

M8850_SF.25.MPSM16T1E1PPP[FR].a > dspcon 5 1000
-----
Local   :          NSAP Address          vpi    vci
(M)     47009181000000000164444B61000001191FFF00      8     1000
Remote  :          NSAP Address          vpi    vci
(S)     47009181000000000164444B6100000101180200      0     101
-----

```

```

Port Number      : 5
Conn. Type      : frForward
Conn Service Type : vbr3nrt
Admn Status     : UP
Slave Persist   : YES
CIR (bps)       : 7936000
BE (bytes)      : 10300
ChanDEtoCLPmap  : setCLPzero
IngrPercentUtil : 100
EgrSrvRate (bps) : 7936000
DE Tagging      : DISABLED
Pref Rte Id     : 0
Upload          : 00000001
OAM CC Config   : DISABLED
Local Loopback  : DISABLED
DLCI            : 1000
Chan Service Type : nrtVBR
Egress Queue Type : lowPriority
Oper Status     : OK
Max Cost        : -1
BC (bytes)      : 10300
FECN Config     : setEFCIzero
ChanCLPtoDEmap  : ignoreCLP
EgrPercentUtil  : 100
ZeroCirEir (bps) : N/A
IgnoreIncomingDE : DISABLED
Directed Route  : NO
Routing Priority : 8
Statistics      : ENABLED
UPC             : ENABLED

```

Type <CR> to continue, Q<CR> to stop:

```

Local PCR (cps) : 44433
Local SCR (cps) : 44433
Local MCR (cps) : N/A
Remote PCR (cps) : 44433
Remote SCR (cps) : 44433
Remote MCR (cps) : N/A
Remote MBS (cps) : 1024

```

```

Xmt Abit State : A equal 1
Xmt ATM State  : Not Sending
Rcv Abit State : OFF
Rcv ATM State  : Not Recving

```

```

E-AIS/RDI    CONDITIONED  CCFAIL  IfFail  Mismatch  LMI-ABIT
NO           NO          NO      NO      NO        NO

```

dspconalmcnts

Display Connection Alarm Counts

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspconalmcnts** command to list alarm counts for the logical interfaces on the card. This command lists by alarm *cause*. The causes are:

- Conditioning
- Ingress alarm
- Egress alarm
- Connection conditioning failure
- Interface failure
- Mismatch
- A-bit

Syntax

dspconalmcnts

Syntax Description

None

Related Commands

dspconalms

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all errored connections.

```
NodeB.6.MPSM155 [ATM] .a > dspconalmcnts
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY ALM CAUSE)*****
*****
IF#  IfState  #Condn  #IngAlm  #EgrAlm  #CCFail  #ifFail  #mismatch  #Abit
---  -
11   FAIL     00000   00000   00000   00000   00000   00000   00000
12   ACTV     00000   00000   00000   00000   00000   00000   00000
28   ACTV     00000   00000   00000   00000   00000   00000   00000
***** SUMMARY ALARM COUNT FOR THE CARD *****
#Condn   #IngAlm   #EgrAlm   #CCFail   #ifFail   #mismatch   #abit
000000   000000   000000   000000   000000   000000   000000
```

Example (Frame Relay Service Context)

In the following example, the user displays all errored connections.

```
mPSM_node.4.MPSM155[FR].a > dspconalmcnts
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY ALM CAUSE) *****
*****
IF#   IfState  #Condn  #IngAlm  #EgrAlm  #CCFail  #ifFail  #mismatch  #Abit
--   -
01   ACTV     00001  00000   00000   00000   00000   00000   00000
12   ACTV     00001  00000   00000   00000   00000   00000   00000
*****
***** SUMMARY ALARM COUNT FOR THE CARD *****
#Condn  #IngAlm  #EgrAlm  #CCFail  #ifFail  #mismatch  #abit
000002  000000  000000  000000  000000  000000  000000
```

Example (PPP Service Context)

In the following example, the user displays all errored connections.

```
mM8850_SF.25.MPSM16T1E1PPP[FR].a > dspconalmcnts
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY ALM CAUSE) *****
*****
IF#   IfState  #Condn  #IngAlm  #EgrAlm  #CCFail  #ifFail  #mismatch  #Abit
--   -
05   ACTV     00000  00000   00000   00000   00000   00000   00000
13   ACTV     00000  00000   00000   00000   00000   00000   00000
*****
***** SUMMARY ALARM COUNT FOR THE CARD *****
#Condn  #IngAlm  #EgrAlm  #CCFail  #ifFail  #mismatch  #abit
000000  000000  000000  000000  000000  000000  000000
```

dspconalms

Display Connection Alarms

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspconalms** command to display connection alarms. The command lists alarms by port and shows alarm counts by the severities of critical, major, and minor alarms. The display also shows which types of failures constitute each of these severities.

Syntax

dspconalms

Syntax Description

None

Related Commands

dspconalments

Attributes

Log: no State: active Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all connection alarms.

```
NodeB.6.MPSM155 [ATM] .a > dspconalms
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY SEVERITY) *****
*****
IF#      IfState    #Critical    #Major      #Minor
--      -
11      FAIL        00000       00000       00000
12      ACTV        00000       00000       00000
28      ACTV        00000       00000       00000
*****
***** PRESENT ALARM SEVERITY CONFIGURATION *****
*****
CRITICAL: Mismatch
MAJOR    : Condn CCFail
MINOR    : IngAlm EgrAlm IfFail Abit
```

Example (Frame Relay Service Context)

In the following example, the user displays all connection alarms.

```

mpsm_node.4.MPSM155[FR].a > dspconalms
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY SEVERITY) *****
*****
IF#      IfState      #Critical      #Major      #Minor
--      -
01      ACTV           00000         00001       00000
12      ACTV           00000         00001       00000
*****
***** PRESENT ALARM SEVERITY CONFIGURATION *****
*****

CRITICAL: Mismatch
MAJOR    : Condn CCFail
MINOR    : IngAlm  EgrAlm  IfFail  Abit

```

Example (PPP Service Context)

In the following example, the user displays all connection alarms.

```

M8850_SF.25.MPSM16T1E1PPP[FR].a > dspconalms
*****
***** CONNECTIONS IN ALARM PER INTERFACE (BY SEVERITY) *****
*****
IF#      IfState      #Critical      #Major      #Minor
--      -
05      ACTV           00000         00000       00000
13      ACTV           00000         00000       00000
*****
***** PRESENT ALARM SEVERITY CONFIGURATION *****
*****

CRITICAL: Mismatch
MAJOR    : Condn CCFail
MINOR    : IngAlm  EgrAlm  IfFail  Abit

```

dspconload

Display Connection Load

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspconload** command to display the number of ingress and egress cells per second on a connection (*ifNum/vpi/vci*). With the statistics provided by **dspconload**, you can determine whether the current load on the connection suggests a modification to the connection or possible troubleshooting.

Syntax

```
dspconload <ifNum> <vpi> <vci>
```

Syntax Description

<i>ifNum</i>	Interface number (port number) of the connection for which you want to display the cell load.
	Note Use the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM ports.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.

Related Commands

dspcons, dspcon, dspload

Attributes

Log: no State: active, standby Privilege: ANYUSER

Examples

In the following example, the user displays the load on the connection on logical port 4 that has a VPI of 100 and a VCI of 100. In this case, no traffic currently exists on the connection.

```
mpsm_node.9.MPSM155 [ATM] .a > dspconload 4 100 100
Getting the stats. Please wait ...
                Ingress      Egress
Cell rate (cps) : 0           0

mpsm_node.9.MPSM155 [ATM] .a >
```

In the following example, the user displays the load on the connection on logical port 1 that has a VPI of 10 and VCI of 100. In this case, traffic exists on the connection.

```
mpsm_node.9.MPSM155[ATM].a > dspconload 1 10 100
Ingress
-----
All non-compliant cells      :      0
CLP1 non-compliant          :      0
CLP0 non-compliant          :      0
CLP0 -> CLP1                :      0
Cells from port
(Before policing)          :      999
CLP0 from port              :      999
CLP1 from port              :      0
EOF from port               :      0
EFCI1 from port             :      0

Cells to network            :      999
CLP0 to network             :      999
CLP1 to network             :      0
EFCI1 to network            :      0
Cells discarded in qe       :      0
CLP0 discarded in qe        :      0
CLP1 discarded in qe        :      0
EOF discarded in qe         :      0

VC queue depth              :      0
ACR (Valid for WFQ conns)  :      1
OAM from port               :      0
RM from port                :      0
RM to network               :      0
OAM to network              :      0
OAM discarded in qe         :      0
EFCI1 discarded in qe       :      0
RM discarded in qe          :      0

Egress
-----
Cells to port               :      999
CLP0 to port                :      999
CLP1 to port                :      0
EOF to port                 :      0
EFCI1 to port               :      0
RM to port                  :      0

Cells from network          :      999
CLP0 from network           :      999
CLP1 from network           :      0
EFCI1 from network          :      0
Cells discarded in qe       :      0
CLP0 discarded in qe        :      0
CLP1 discarded in qe        :      0

EFCI1 discarded in qe       :      0
VC queue depth              :      0
ACR (Valid for WFQ conns)  :      1
OAM to port                 :      0

RM from network             :      0
OAM from network            :      0
OAM discarded in qe         :      0
RM discarded in qe          :      0
```


dspcons

Display Connections

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspcons** command to display general information about all connections on the current card. The default entry of the **dspcons** command requires no parameters and displays general information for all connections. Because of the very large number of possible connections, optional filters are available to let you narrow the scope of the output.

The dspcons Output in the ATM Service Context

The columns at the head of the information fields are:

<i>record</i>	A number for the connection with internal application only. It resides in the database on the card, and is not affected by user input. The system creates this number when you create the connection. The Cisco WAN Manager application uses this number.
<i>Identifier</i>	Identifies the connection in the format <i>port vpi vci</i> .
<i>Type</i>	Shows whether the connection is a VCC or a VPC.
<i>Srvctype</i>	The service type—VBR, and so on. (See addcon description).
M/S	Indicates whether the endpoint specified by <i>Identifier</i> is the master or slave.
Upld	The hexadecimal Upload number is an encoded timestamp the Cisco WAN Manager application uses to determine when a connection was created or modified. In the CLI context, this field has little meaning.
Adm	The administrative state of the connection. If the connection is down, it may have resulted from the dncon command.
Alarm	Shows the alarm status of the connection. Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.

The dspcons Output in the Frame Relay and PPP Service Contexts

On an MPSM-T3E3-155, the columns at the head of the information fields are:

<i>record</i>	A number for the connection with internal application only. It resides in the database on the card, and is not affected by user input. The system creates this number when you create the connection. The Cisco WAN Manager application uses this number.
<i>Identifier</i>	Identifies the connection in the format <i>port dlci</i> .
<i>Srvctype</i>	The service type—VBR, and so on. (See addcon description).
M/S	Indicates whether the endpoint specified by <i>Identifier</i> is the master or slave.
Upld	The hexadecimal Upload number is an encoded timestamp the Cisco WAN Manager application uses to determine when a connection was created or modified. In the CLI context, this field has little meaning.

Adm	The administrative state of the connection. If the connection is down, it may have resulted from the dncon command.
Alarm	Shows the alarm status of the connection.
	Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.

Syntax (ATM Service Context)

```
dspcons [-conn <conn id>] [-filt <filter options>] [-if <intf no>] [-vpi <vpi filter>] [-vci <vci filter>]
```

Syntax Description (ATM Service Context)

-conn	Identify a connection to begin the display. The connection ID has the following format: <i>port.vpi.vci</i>
	Note Enter the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM ports.
-filt	An integer after the filt keyword identifies a type of filter, as follows: <ul style="list-style-type: none"> • 1 = ingr—display errors in the ingress direction • 2 = egr—display errors in the egress direction • 3 = condn—display connections where the switch has conditioned the connection • 4 = iffail—display connections with a failed logical interface • 5 = ccfail—display connections with connection conditioning failure • 6 = mis—display connections with a mismatch • 7 = abit—display connections with an a-bit alarm • 8 = any—display connections with failure • 9 = none—Do not use any filters in the dspcons display.
-if	Specifies the interface number (port number). <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003
-vpi	Specifies the Virtual Path Identifier. <ul style="list-style-type: none"> • VCC range 0-4095
-vci	Specifies the Virtual Connection Identifier (VCI). <ul style="list-style-type: none"> • VCC range: 1-65535 • VPC: 0 only

Syntax (Frame Relay Service Context)

```
dspscons [-conn <conn id>] [-filt <filter options>] [-if <intf no>] [-dlci <dlci filter>]
```

Syntax Description (Frame Relay Service Context)

-conn	Identify a connection to begin the display. The connection ID has the following format: <i>port.dlci</i>
	Note Enter the dspcons command in the Frame Relay context to display the port number and DLCI for all Frame Relay connections on the card.
-filt	An integer after the filt keyword identifies a type of filter, as follows: <ul style="list-style-type: none"> • 1 = ingr—display errors in the ingress direction • 2 = egr—display errors in the egress direction • 3 = condn—display connections where the switch has conditioned the connection • 4 = iffail—display connections with a failed logical interface • 5 = ccfail—display connections with connection conditioning failure • 6 = mis—display connections with a mismatch • 7 = abit—display connections with an a-bit alarm • 8 = any—display connections with failure • 9 = none—Do not use any filters in the dspcons display.
-if	Specifies the interface number (port number). <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-499 • MPSM-T3E3-155 range: 1-1003
-dlci	Specifies the Data-Link Connection Identifier. <ul style="list-style-type: none"> • 2-byte header range: 1-1006 and 1008-1022 • 4-byte header range: 1-8257534 and 8257536-8388607 <p>Enter the dspcons command in the Frame Relay CLI context to display the DLCIs for all active Frame Relay connections.</p>

Syntax (PPP Service Context)

dspcons [-conn <conn id>] [-filt <filter options>] [-if <intf no>] [-dlci <dlci filter>]

Syntax Description (PPP Service Context)

-conn	Identify a connection to begin the display. The connection ID has the following format: <i>port.dlci</i>
	Note Enter the dspcons command in to display the port number and DLCI for all MLPPP connections on the card.
-filt	An integer after the filt keyword identifies a type of filter, as follows: <ul style="list-style-type: none"> • 1 = ingr—display errors in the ingress direction • 2 = egr—display errors in the egress direction • 3 = condn—display connections where the switch has conditioned the connection • 4 = iffail—display connections with a failed logical interface • 5 = ccfail—display connections with connection conditioning failure • 6 = mis—display connections with a mismatch • 7 = abit—display connections with an a-bit alarm • 8 = any—display connections with failure • 9 = none—Do not use any filters in the dspcons display.
-if	Specifies the interface number (bundle number). <ul style="list-style-type: none"> • MPSM-16-T1E1 range: 1-16
-dlci	Specifies the Data-Link Connection Identifier. <ul style="list-style-type: none"> • 2-byte header range: 1-1006 and 1008-1022 • 4-byte header range: 1-8257534 and 8257536-8388607 <p>Enter the dspcons command in the Frame Relay CLI context to display the DLCIs for all active Frame Relay connections.</p>

Related Commands

dspscon, addcon, cnfcon, delcon, dncon, upcon, dsppncon, dsppncons

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all the connections.

```
mpsm_node.9.MPSM155 [ATM] .a > dspcons
record   Identifier   Type   Srvctype   M/S   Upld   Admn   Alarm
-----   -
0 04 0100 00100   VCC       cbr1   S   00000003   UP   Condn
```

Example (Frame Relay Service Context)

In the following example, the user displays all the connections.

```
mpsm_node.5.MPSM155[FR].a > dspcons
record Identifier      Srvctype  M/S      Upd      Admn      Alarm
-----
0      50 0000100  High Priority  S      0000001a  UP      Mismatch
```

Example (PPP Service Context)

In the following example, the user displays all the connections.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspcons
record Identifier      Srvctype  M/S      Upd      Admn      Alarm
-----
0      05 0001000      nrtVBR    M      00000001  UP      None
1      13 0001000      nrtVBR    M      00000002  UP      None
```

dspdiagresults

Display Diagonal Results

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspdiagresults** command to display an online diagnostics test summary.

Syntax

dspdiagresults

Related Commands

cnfdiag, **dspdiagstat**

Example (MPSM-T3E3-155)

In the following example, the user displays the online diagnostics test summary for the MPSM-T3E3-155.

```
M8850_SF.9.MPSM155[FR].a > dspdiagresults
-----
      Online Diagnostics Test Summary - Diag Suite DISABLED
-----
      Test Name          #Attempt #Fail   #Pass Alarm Result
      -----
      CBC slave lpbk           0     0     0 None   Pass
      CBC Master lpbk          0     0     0 None   Pass
      Winpath Host Mem         0     0     0 None   Pass
      Winpath 0 Pkt Mem        0     0     0 None   Pass
      Winpath 1 Pkt Mem        0     0     0 None   Pass
      Winpath 0 Prm Mem        0     0     0 None   Pass
      Winpath 1 Prm Mem        0     0     0 None   Pass
      Flash Checksum           0     0     0 None   Pass
      FC NVRAM Checksum        0     0     0 None   Pass
      MPC R/W                   0     0     0 None   Pass
      CBC R/W                    0     0     0 None   Pass
      Spectra R/W               0     0     0 None   Pass
      Suni4xJET R/W            0     0     0 None   Pass
      TEMUX84 R/W              0     0     0 None   Pass
      FREEDM84 0 R/W           0     0     0 None   Pass
      FREEDM84 1 R/W           0     0     0 None   Pass
      IMA84 R/W                 0     0     0 None   Pass
      APOX R/W                  0     0     0 None   Pass
```

Example (MPSM-16-T1E1)

In the following example, the user displays an online diagnostics test summary for the MPSM-16-T1E1.

```
M8850_SF.27.MPSM16T1E1[FR].a > dspdiagnostics
```

```
-----
Online Diagnostics Test Summary - Diag Suite DISABLED
-----
```

Test Name	#Attempt	#Fail	#Pass	Alarm	Result
CBC slave lpbk	0	0	0	None	Pass
CBC Master lpbk	0	0	0	None	Pass
Winpath Host Mem	0	0	0	None	Pass
Winpath 0 Pkt Mem	0	0	0	None	Pass
Winpath 1 Pkt Mem	0	0	0	None	Pass
Winpath 0 Prm Mem	0	0	0	None	Pass
Winpath 1 Prm Mem	0	0	0	None	Pass
Flash Checksum	0	0	0	None	Pass
FC NVRAM Checksum	0	0	0	None	Pass
MPCTL R/W	0	0	0	None	Pass
Comet 1 R/W	0	0	0	None	Pass
Comet 2 R/W	0	0	0	None	Pass
Comet 3 R/W	0	0	0	None	Pass
Comet 4 R/W	0	0	0	None	Pass
Comet 5 R/W	0	0	0	None	Pass
Comet 6 R/W	0	0	0	None	Pass
Comet 7 R/W	0	0	0	None	Pass

```
Type <CR> to continue, Q<CR> to stop:
```

Comet 8 R/W	0	0	0	None	Pass
Comet 9 R/W	0	0	0	None	Pass
Comet 10 R/W	0	0	0	None	Pass
Comet 11 R/W	0	0	0	None	Pass
Comet 12 R/W	0	0	0	None	Pass
Comet 13 R/W	0	0	0	None	Pass
Comet 14 R/W	0	0	0	None	Pass
Comet 15 R/W	0	0	0	None	Pass
Comet 16 R/W	0	0	0	None	Pass
SLFP R/W	0	0	0	None	Pass

dspeng

Display Engineering

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspeng** command to display if access to engineering debugging commands is on or off.

Syntax

dspeng

Syntax Description

None.

Related Commands

seteng

Attributes

Log: yes

State: active, standby, init

Privilege: CISCO_GP

Example

In the following example, the user displays access to the engineering related commands.

```
M8850_SF.10.MPSM155[FR].a > dspeng  
Eng mode is OFF
```


dspfile

Display File

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspfile** command to display the contents of a file on the hard drive in either ASCII (plain text) or hexadecimal format.

Syntax

```
dspfile <filename> [-a] [-np]
```

Syntax Description

<i>filename</i>	The name of the file to display.
-a	Optional keyword that specifies the ASCII (plain text) display of the file. Not all files can display in ASCII
-np	Optional keyword that specifies no paging for the text file.

Related Commands

None

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the “version” file first in ASCII format. This file is very small.

```
NodeB.6.MPSM155 [ATM] .a > dspfile version -a
BOOTFILE=pxm1e_003.000.000.000-D_mgx.fw.
```

dspfrparms

Display Frame Relay Parameters

Service Context—Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspfrparms** command to display the Frame Relay egress QoS scheme. The QoS schemes are:

- twoPlusOneFrame
- twoPlusOneByte

Syntax

dspfrparms

Syntax Description

None.

Related Commands

cnffrparms

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the Frame Relay QoS scheme.

```
M8830_CH.12.MPSM155[FR].a > dspfrparms
  Frame Relay Egress QoS Scheme: 2 + 1 Frame
```

dspilmi

Display ILMI

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspilmi** command to display the integrated local management interface (ILMI) configuration on a specific port.

Syntax

```
dspilmi <ifNum> <partId>
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) for which you want to display ILMI information.
Note	Use the dspparts command in the ATM CLI context to display the interface number and partition ID for all active ATM ports.
<i>partId</i>	Specifies the partition ID, in the range 1–20.

Related Commands

cnfilmi, **dspilmis**, **dspilmicnt**, **clrilmicnt**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays ILMI information for logical interface 11, resource partition 1.

```
NodeB.6.MPSM155 [ATM].a > dspilmi 11 1
Configuration :
----- :
Port          :      10          SigVpi : 0
Partition     :         1          SigVci : 16

IfIndex      : 17176587          S:Keepalive Intvl :      1
SessionId    :         1          T:conPoll Intvl   :      5
Ilmi Trap    : enable           K:conPoll InactvFactor : 4

Agent        : disable          EnFromCtrlr      : disable
Poll         : enable           ModLocalAttr     : disable
AddrReg      : disable          ServReg          : disable
AutoCnfg     : disable

ILMI Protocol :
-----
State         : UNKNOWN
Last Event    : UNKNOWN
```

dspilmicnt

Display ILMI Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspilmicnt** command to display the ILMI statistics for a specific port.

Syntax

dspilmicnt *<ifNum>* *<partId>*

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) for which you want to display ILMI statistics.
Note	Use the dspparts command in the ATM CLI context to display the interface number and partition ID for all active ATM ports.
<i>partId</i>	Specifies the partition ID, in the range 1–20.

Related Commands

cnfilmi, **dspilmi**, **dspilmis**, **clrilmicnt**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the ILMI counters for logical port 4, partition ID 1.

```
NodeB.6.MPSM155 [ATM] .a > dspilmicnt 4 1
If Number                : 4
Partition Id             : 1
SNMP Pdu Received       : 0
GetRequest Received     : 0
GetNext Request Received : 0
SetRequest Received     : 0
Cold Start Trap Received : 0
GetResponse Received    : 0
GetResponse Transmitted : 0
GetRequest Transmitted  : 0
Cold Start Trap Transmitted : 0
VPC Trap Transmitted    : 0
VCC Trap Transmitted    : 0
Unknown Type Received   : 0
ASN1 Pdu Parse Error    : 0
No Such Name Error      : 0
Pdu Too Big Error       : 0
```

dspilmis

Display Integrated Local Management Interfaces

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspilmis** command to display summary information for all integrated local management interfaces (ILMIs).

Syntax

dspilmis

Related Commands

cnfilmi, dspilmi, dspilmicnt

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all ILMIs.

```
NodeB.6.MPSM155 [ATM] .a > dspilmis
```

Sig. Port	rsrc Part	Ilmi State	Sig Vpi	Sig Vci	Ilmi Trap	S:Keepalive Interval	T:conPoll Interval	K:conPoll InactiveFactor
11	1	Off	0	16	On	1	5	4
12	1	Off	0	16	On	1	5	4
28	1	Off	0	16	On	1	5	4

dspimagrp

Display IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrp** command to display the following configuration information for the specified IMA *group*.

Information	Description
IMA group number	Identifies the IMA group whose configuration information you want to display.
NE IMA version	The IMA version at the near end (was specified by addimagrp).
Group symmetry	The group symmetry mode adjusted during the group start-up.
Minimum links in TX direction	The minimum number of links that must be active on the transmit side for the IMA group to be operational.
Minimum links in RX direction	The minimum number of links that must be active on the receive side for the IMA group to operational.
NE TX clock mode	The transmit clocking mode used by the near-end IMA group.
FE TX clock mode	The transmit clocking mode used by the far-end IMA group.
TX Frame length	The frame length used by the IMA group in the transmit direction.
RX Frame length	The frame length used by the IMA group in the receive direction.
Group GTSM	The current state of the IMA group (the GTSM state).
NE group state	The state of the near-end IMA group. For example: start-up state.
FE group state	The state of the far-end IMA group. For example: start-up state.
Group failure status	Could be near end state is unknown, failed, start-up, etc.
TX IMA ID	The IMA ID currently in use by the near-end IMA function.
RX IMA ID	The IMA ID currently in use by the far-end IMA function.
Max cell rate	The maximum number of cells per second for this IMA group.
Avail cell rate	The amount of bandwidth in cells per second available to this group.
Differential delay maximum	The maximum number of milliseconds of differential delay among the links that are tolerated on this interface.
Diff delay maximum observed	The latest maximum differential delay (in milliseconds) observed between the links having the least and most link propagation delay, among the receive links currently configured in the IMA group.
Accumulated delay	The accumulated delay for the current IMA group in milliseconds.
Clear accumulated delay status	The accumulated delay status for the current IMA group.
GTSM up integration time	Integration UP time for alarm integration. Persisting checking time to enter a failure alarm condition, in case of LIF, LODS, RFI-IMA fault failure alarms. Units of measure are milliseconds.

Information	Description
GTSM down integration time	Integration DOWN time for alarm integration. Persisting clearing time to exit the LIF, LODS, RFI-IMA failure alarm conditions. Units of measure are milliseconds.
Number TX configured links	The number of transmit links that are configured in this IMA group.
Number RX configured link	The number of receive links that are configured in this IMA group.
Number of active TX links	The number of transmit links that are active in this IMA group.
Number of actual RX links	The number of receive links that are active in this IMA group.
Least delay link	The <i>ifIndex</i> of the link configured in the IMA group that has the smallest link propagation delay. A value of zero may appear if no link has been configured in the IMA group or if the link with the smallest link propagation delay has not yet been determined.
Tx timing reference link	The <i>ifIndex</i> of the transmit timing reference link used by the near-end for IMA data cell clock recovery from the ATM layer. A value of zero may appear if no link has been configured in the group or if the transmit timing reference link has not yet been selected.
Rx timing reference link	The <i>ifIndex</i> of the receive timing reference link used by the near-end for IMA data cell clock recovery toward the ATM layer. A value of zero may appear if no link has been configured in the group or if the receive timing reference link has not yet been selected.
Group running seconds	The number of seconds the local IMA group has been running.
Alpha value	This is the alpha value used to specify the number of consecutive invalid ICP cells to be detected before moving to the IMA Hunt state from the IMA Sync state.
Beta value	This is the beta value used to specify the number of consecutive errored ICP cells to be detected before moving to the IMA Hunt state from the IMA Sync state.
Gamma value	This is the gamma value used to specify the number of consecutive valid ICP cells to be detected before moving to the IMA Sync state from the IMA PreSync state.
TX OAM label	IMA OAM Label value transmitted by the near-end IMA unit.
RX OAM label	IMA OAM Label value transmitted by the far-end IMA unit. A 0 likely means that the IMA unit has not yet received an OAM label from the far-end IMA unit.
Test pattern procedure status	The current link test procedure status—enabled or disabled, for example.
Test link	The current link under test.
Test pattern	The current link test pattern.
Stuff Cell Indication (frames)	The Stuff Cell indicator in frames.
Version Fallback Enabled	Indicates whether version fallback is enabled (true) or disabled (false).
Auto-Restart Mode	Indicates whether version fallback is enabled or disabled.

Information	Description
Rx IMA ID Expected	Displays the ID of the IMA that is expected to be received from the far end of the connection.
Auto-Restart Sync State	Indicates whether Auto-Restart Sync is enabled or disabled.

Syntax

dspimagrp <group>

Syntax Description

<i>group</i>	Specifies the IMA group to display.
Note	Enter the dspimagrps command to see a list of all IMA groups on the current card.

Related Commands

addimagrp, delimagrp, dspimagrps, cnfimagrps

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays the configuration for group 1.

```
NodeB_6.MPSM155 [ATM] .a > dspimagrp 1
  Group Number                : 1
  NE IMA Version              : 1.1
  Group Symmetry              : Symm  Operation
  Tx Min Num Links            : 1
  Rx Min Num Links            : 1
  NE Tx Clk Mode              : CTC
  FE Tx Clk Mode              : CTC
  Tx Frame Len (bytes)        : 128
  Rx Frame Len (bytes)        : 128
  Group GTSM                  : Up
  NE Group State              : Operational
  FE Group State              : Operational
  Group Failure Status        : No Failure
  Tx Ima ID                   : 1
  Rx Ima ID                   : 22
  Max Cell Rate (c/s)         : 7183
  Avail Cell Rate (c/s)       : 7183
  Diff Delay Max (msecs)      : 200
  Diff Delay Max Observed (msecs) : 0
  Accumulated Delay (msecs)   : 0
  Clear Accumulated Delay Status : Not In Progress
  GTSM Up Integ Time (msecs)  : 0

Type <CR> to continue, Q<CR> to stop:
  GTSM Dn Integ Time (msecs)  : 4000
```



```
Num Tx Cfg Links           : 2
Num Rx Cfg Links           : 2
Num Act Tx Links           : 2
Num Act Rx Links           : 2
Least Delay Link           : 1.1:28
Tx Timing Ref Link         : 1.1:28
Rx Timing Ref Link         : 1.1:27
Group Running Secs         : 276430
Alpha Val                   : 2
Beta Val                    : 2
Gamma Val                   : 1
Tx OAM Label                : 3
Rx OAM Label                : 3
Test Pattern Procedure Status : Disabled
Test Link                   : Unknown
Test Pattern                : 255
Stuff Cell Indication (frames) : 1
Version Fallback Enabled    : true
Auto-Restart Mode           : disable
Rx IMA ID Expected          : -1
Auto-Restart Sync State     : disable
```

dspimagrpalms

Display IMA Group Alarm

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrpalms** command to display the group number and alarm state for the specified IMA *group*. The possible alarms are as follows:

- imaAlarmLinkLif (1)
- imaAlarmLinkLods (2)
- imaAlarmLinkRfi (3)
- imaAlarmLinkTxMisConnect (4)
- imaAlarmLinkRxMisConnect (5)
- imaAlarmLinkTxFault (6)
- imaAlarmLinkRxFault (7)
- imaAlarmLinkTxUnusableFe (8)
- imaAlarmLinkRxUnusableFe (9)
- imaAlarmGroupStartupFe (10)
- imaAlarmGroupCfgAbort (11)
- imaAlarmGroupCfgAbortFe (12)
- imaAlarmGroupInsuffLinks (13)
- imaAlarmGroupInsuffLinksFe (14)
- imaAlarmGroupBlockedFe (15)
- imaAlarmGroupTimingSynch (16)

Syntax

dspimagrpalms <*group*>

Syntax Description

group Specifies the IMA group whose alarms you want to display.

Note Enter the **dspimagrps** command in the ATM context to see a list of all IMA groups on the current card.

Related Commands

dspimagrpalms

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays the alarms for IMA group 11.

```
NodeB.6.MPSM155 [ATM] .a > dspimagrpaln 11
```

```
Group Number           : 11  
Alarm State            : clear
```

dspimagrpalmcnt

Display IMA Group Alarm Count

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrpalmcnt** command to display the current alarm count for the specified IMA *group*.

Syntax

dspimagrpalmcnt *<group>*

Syntax Description

<i>group</i>	Specifies the IMA group whose alarm counters you want to display.
Note	Enter the dspimagrps command in the ATM context to see a list of all IMA groups on the current card.

Related Commands

clrimagrpalmcnt, clrimagrpalmcnts, dspimagrpalmcnt, dspimagrpbucketcnt

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the current alarm count for IMA group 1.

```
NodeB.6.MPSM155 [ATM] .a > dspimagrpalmcnt 1
Group Number                : 1
Group Running Secs          : 0
Group Unavail Secs          : 0
Group Num NE Failure         : 0
Group Num FE Failure         : 0
Group Avail Cell Rate        : 0
```

dspimagrpalms

Display IMA Group Alarms

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrpalms** command to display the group number and alarm state for all configured IMA groups. The possible alarms are as follows:

- imaAlarmLinkLif (1)
- imaAlarmLinkLods (2)
- imaAlarmLinkRfi (3)
- imaAlarmLinkTxMisConnect (4)
- imaAlarmLinkRxMisConnect (5)
- imaAlarmLinkTxFault (6)
- imaAlarmLinkRxFault (7)
- imaAlarmLinkTxUnusableFe (8)
- imaAlarmLinkRxUnusableFe (9)
- imaAlarmGroupStartupFe (10)
- imaAlarmGroupCfgAbort (11)
- imaAlarmGroupCfgAbortFe (12)
- imaAlarmGroupInsuffLinks (13)
- imaAlarmGroupInsuffLinksFe (14)
- imaAlarmGroupBlockedFe (15)
- imaAlarmGroupTimingSynch (16)

Syntax

dspimagrpalms

Syntax Description

No parameters

Related Commands

dspimagrpalms

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays alarms for all configured IMA groups:

```
NodeB.6.MPSM155 [ATM] .a > dspimagrpalms
```

```
Group Number          : 11  
Alarm State           : Clear
```

```
Group Number          : 12  
Alarm State           : StartUp Ne
```

dspimagrpbucketcnt

Display IMA Group Bucket Count

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrpbucketcnt** command to display the alarm bucket count for the specified IMA *group* at the specified interval (*intvl*).

Syntax

```
dspimagrpbucketcnt <group> <intvl>
```

Syntax Description

<i>group</i>	Specifies the IMA group whose alarm counters you want to display. Note Enter the dspimagrps command in the ATM context to see a list of all IMA groups on the current card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Related Commands

clrimagrpalment, **clrimagrpalments**, **dspimagrpalment**, **dspimagrpent**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the cell count in the policing bucket for IMA group 5 at the most recent 15-minute interval.

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dspimagrpbucketcnt 5 0
  Group Number           : 5
  Interval Number        : 0

  Unavailable Seconds    :           0
  Near End Failures      :           0
  Far End Failures       :           0
```

dspimagrps

Display IMA Groups

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimagrps** command to display the following information for all configured IMA groups:

Information	Description
IMA grp	Identifies the IMA group you are displaying.
min links	Minimum number of active links required for the IMA group to be operational.
Tx frm len	Transmit frame length. Possible frame lengths are as follows: <ul style="list-style-type: none"> • IMA 1.0—128 • IMA 1.1—32,64,128 or 256
Rx frm len	Receive frame length. Possible frame lengths are as follows: <ul style="list-style-type: none"> • IMA 1.0—128 • IMA 1.1—32,64,128 or 256
Tx clk mode	Specifies the transmit clock mode. Enter a number to indicate the transmit clock mode as follows: <ul style="list-style-type: none"> • 1 = CTC • 2 = ITC
Diff delay (ms)	The maximum differential delay in milliseconds.
NE-IMA state	The current operational state of the near-end IMA Group State Machine.
FE-IMA state	The current operational state of the far-end IMA Group State Machine.
IMA ver	The version of IMA in use by the IMA group, either IMA 1.0 or IMA 1.1.

Syntax

dspimagrps

Syntax Description

No parameters

Related Commands

dspimagrps

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays information about all configured IMA groups.

```
NodeB.6.MPSM155 [ATM] .a > dspimagrps
Ima  Min  Tx   Rx   Tx   Diff          NE-IMA          FE-IMA  IMA
Grp  Lnks Frm Frm  Clk  Delay        State          State   Ver
      Len  Len  Mode (ms)
-----
  1   1   128 128  CTC  200          Insuff Links    Operational  1.1
  2   2   256 256  CTC  275          Operational     Operational  1.1
  3   2   256 256  CTC  100          Insuff Links    Insuff Links  1.1
```

dspimalnk

Display IMA Link

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnk** command to display the following configuration information for the specified IMA link.

Field	Description
IMA Link Number	Identifies the line or path of the IMA link you want to display.
IMA Link Group Number	Identifies the IMA group to which the specified IMA link belongs.
LinkRelDelay	The latest measured delay (in milliseconds) on this link relative to the link, in the same IMA group, with the least delay.
LinkNeTxState	The current state of the near-end transmit link
LinkNeRxState	The current state of the near-end receive link.
LinkFeTxState	The current state of the far-end transmit link as reported via ICP cells.
LinkFeRxState	The current state of the far-end receive link as reported via ICP cells.
LinkNeRxFailureStatus	The current link failure status of the near-end receive link.
LinkFeRxFailureStatus	The current link failure status of the far-end receive link as reported via ICP cells.
ImaLink TxLid	Identifies the local outgoing link.
ImaLink RxLid	Identifies the remote incoming link as reported via ICP cells.
LinkRxTestPattern	This object identifies the test pattern received in the ICP Cell (octet 17) on the link during the IMA Test Pattern Procedure. This value may then be compared to the transmitted test pattern.
LinkTestProcStatus	This value indicates the current state of the Test Pattern Procedure: <ul style="list-style-type: none"> disabled: the test is not running operating: the test is running and no error has been found on this interface. linkFail: an error has been detected on this link during the test.
LinkLifIntUpTime	LIF integration up time. Range: 0–400000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.
LinkLifIntDnTime	LIF integration down time. Range: 0–400000 milliseconds. The LIF (Loss of IMA Frame) defect is the occurrence of persistent OIF (Out of IMA Frame) anomalies for at least 2 IMA frames.

LinkLodsIntUpTime	LODS integration up time. Range 0–100000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.
LinkLodsIntDnTime	LODS integration down time. Range 0–100000 milliseconds. The LODS (Link Out of Delay Synchronization) is a link event indicating that the link is not synchronized with the other links within the IMA group.

Syntax

dspimalnk <link>

Syntax Description

<i>link</i>	Identifies the link (line or path) in an IMA group to display.
Note	Enter the dspimalnks command to see a list of all IMA links on the current card.

Related Commands

addimalnk, cnfimalnk, delimalnk, dspimalnks

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays the configuration information for IMA link (path) 1.1:7.

```
M8850_SF.10.MPSM155 [ATM] .a > dspimalnk 1.1:7
IMA Link Number           : 1.1:7
IMA Link Group Number     : 1
Link Rel Delay (msecs)    : 0
Link NE Tx State          : Active
Link NE Rx State          : Active
Link FE Tx State          : Active
Link FE Rx State          : Active
Link NE Rx Failure Status : No Failure
Link FE Rx Failure Status : No Failure
IMA Link Tx LID           : 0
IMA Link Rx LID           : 0
Link Rx Test Pattern      : 255
Link Test Procedure Status : Disabled
Link LIF Integ UpTime     : 2500
Link LIF Integ DownTime   : 10000
Link LODS Integ UpTime    : 2500
Link LODS Integ DownTime  : 10000
```

dspimalnkalm

Display IMA Link Alarm

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnkalm** command to display the alarm state of the specified IMA link/path.

Information	Description
Link Number	The IMA path or line number.
Alarm	The IMA link alarm state.

Syntax

dspimalnkalm <link>

Syntax Description

<i>link</i>	Identifies the link (line or path) for which you want to display alarms.
Note	Enter the dspimalnks command to see a list of all links on the current card.

Related Commands

dspimalnkalms

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays the alarms for the IMA link with the path ID 1.1.3:1.2 (where the bay is 1, the line is 1, the STS is 3, the VTG is 1, and the VT is 2). In this example, there are no alarms present.

```
mpsm_node.5.MPSM155 [ATM] .a > dspimalnkalm 1.1.3:1.2
```

```
Link Number           : 1.1.3:1.2
Alarm State           : clear
```

In the following example, the user displays alarms for IMA link (physical line) 1.2. In this example, link1.2 shows an LIF (Loss of IMA Frame) failure.

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dspimalnkalm 1.2
```

```
Link Number           : 1.2
Alarm State           : Lif Fail
mpsm_node.5.MPSM155 [ATM] .a >
```

dspimalnkalms

Display IMA Link Alarms

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnkalms** command to display the alarm states of all IMA links.

Information	Description
imaLinkNumber	Identifies the IMA line or path.
Alarm	The IMA link Alarm State.

Syntax

dspimalnkalms

Syntax Description

No parameters

Related Commands

dspimalnkalm

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays alarms for all IMA links.

```
M8850_SF.10.MPSM155 [ATM] .a > dspimalnkalms
```

```
Link Number      : 1.1:2
Alarm State      : Clear
```

```
Link Number      : 1.2:2
Alarm State      : Clear
```

dspimalnkbucketcnt

Display IMA Link Bucket Count

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnkbucketcnt** command to display the following performance and statistic bucket counter information for the specified IMA link at the specified interval.

Information	Description
Link Number	Identifies the IMA link whose performance and statistic counter information you want to display.
Interval Number	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.
SEs	The count of one-second intervals containing less than 30 percent of the ICP cells counted as IV-IMAs, or one or more link defects (such as LOS, OOF/LOF, AIS, LIF, LODS, or LCD) except during UAS-IMA condition. The number of SEs is displayed for both the near end and the far end.
Unavailable Seconds	The count of unavailable seconds at the near end and far end. Unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA.
Tx Unusable Seconds	The count of unusable seconds for transmitting at the near-end Tx LSM and from the far end Tx LSM.
Rx Unusable Seconds	The count of seconds with unusable indications for receiving at the near end RX LSM and from the far-end RX LSM.
Tx Stuffs	The count of stuffed events inserted in the transmit direction. This is an optional attribute.
Rx Stuffs	The count of stuffed events detected in the receive direction. This is an optional attribute.
IMA Violations	The count of errored, invalid, or missing IMA Control Protocol (ICP) cells, except during SES-IMA or UAS-IMA conditions.
OIF Anomalies	The count of Out of IMA Frame (OIF) anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end. This is an optional attribute.

Syntax

dspimalnkbucketcnt <link> <intvl>

Syntax Description

<i>link</i>	Identifies the IMA link (line or path) for which you want to display interval stastics. Note Enter the dspimalnks command to see a list of all IMA links on the current card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Related Commands

clrimagrpalmcnt, clrimagrpalmcnts, clriminalnkcnts

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays performance and statistic bucket counter information for the IMA link with the path ID 1.1.3:1.2. In this example, the user displays the cell count at the most recent 15-minute interval.

```
mpsm_node.5.MPSM155 [ATM] .a > dspimalnkbucketcnt 1.1.3:1.1 1
  Link Number           : 1.1.3:1.2
  Interval Number       : 1

                               Near End      Far End
SESS                      : 0                0
Unavailable Seconds       : 900             900
Tx Unusable Seconds       : 900             900
Rx Unusable Seconds       : 900             900
Tx Stuffs                  : 1592
Rx Stuffs                  : 0
IMA Violations            : 0
OIF Anomalies             : 0
```

dspimalnkcnt

Display IMA Link Counters

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnkcnt** command to display the following performance and statistic counter information for an IMA link.

Information	Description
IMA Link Number	Identifies the IMA link whose performance and statistic counter information you want to display.
IMA Group Number	Identifies the IMA group to which the specified IMA link belongs.
IMA Link Violations	The count of errored, invalid, or missing ICP cells, except during SES-IMA or UAS-IMA conditions.
IMA Link OIF Anomalies	The number of OIF anomalies, except during SES-IMA or UAS-IMA conditions, at the near-end. This is an optional attribute.
IMA Link NE SES	The count of one-second intervals containing less than 30 percent of the ICP cells counted as IV-IMAs, or one or more link defects (such as LOS, OOF/LOF, AIS, LIF, LODS, or LCD) except during UAS-IMA condition.
IMA Link FE SES	The count of one-second intervals containing one or more RDI-IMA defects, except during UAS-IMA-FE condition.
IMA Link NE UnavSec	The count of unavailable seconds at the near-end: unavailability begins at the onset of 10 contiguous SES-IMA and ends at the onset of 10 contiguous seconds with no SES-IMA.
IMA Link FE UnavSec	The count of unavailable seconds at the far-end: unavailability begins at the onset of 10 contiguous SES-IMA-FE and ends at the onset of 10 contiguous seconds with no SES-IMA-FE.
IMA Link NE Tx UnusSec	The count of unusable seconds for transmitting at the near-end Tx LSM.
IMA Link NE Rx UnusSec	The count of unusable seconds for receiving at the near-end Rx LSM.
IMA Link FE Tx UnusSec	The count of seconds with unusable indications for transmitting from the far-end Tx LSM.
IMA Link FE Rx UnusSec	The count of seconds with unusable indications for receiving from the far-end Rx LSM.
IMA Link NE Tx Num Fail	The number of times a near-end transmit failure alarm condition has been entered on this link.
IMA Link NE Rx Num Fail	The number of times a near-end receive failure alarm condition has been entered on this link.
IMA Link FE Tx Num Fail	The number of times a far-end transmit failure alarm condition has been entered on this link.
IMA Link FE Rx Num Fail	The number of times a far-end receive failure alarm condition has been entered on this link.

IMA Link Tx Stuffs	The count of stuffed events inserted in the transmit direction. This is an optional attribute.
IMA Link Rx Stuffs	The count of stuffed events detected in the receive direction. This is an optional attribute.
IMA Link Rx Error Free ICP Cells	The count of ICP cells received with no errors.

Syntax

dspimalnkcnt <link>

Syntax Description

<i>link</i>	Identifies the IMA link (line or path) for which you want to display stastics. Enter the dspimalnks command to see a list of all links on the current card.
-------------	--

Related Commands

dspimalnk

Attributes

Log: no State: active Privilege: ANYUSER

Example

In the following example, the user displays performance and statistic counters for the IMA link with the path ID 1.1.3:1.2.

```
mpsm_node.5.MPSM155 [ATM] .a > dspimalnkcnt 1.1.3:1.2
  IMA Link Number           : 1.1.3:1.2
  IMA Group Number         : 11
  IMA Link Violations       : -2144619088
  IMA Link OIF Anomalies    : -1
  IMA Link NE SES          : -2024403408
  IMA Link FE SES          : 641
  IMA Link NE UnavSec       : 0
  IMA Link FE UnavSec       : 641
  IMA Link NE Tx UnusSec    : 0
  IMA Link NE Rx UnusSec    : -2140201800
  IMA Link FE Tx UnusSec    : 0
  IMA Link FE Rx UnusSec    : 16
  IMA Link NE Tx Num Fail   : -1
  IMA Link NE Rx Num Fail   : -1
  IMA Link FE Tx Num Fail   : 641
  IMA Link FE Rx Num Fail   : -2144989092
  IMA Link Tx Stuffs        : 641
  IMA Link Rx Stuffs        : -2117391680
  IMA Link Rx Error Free ICP cells : 64
mpsm_node.5.MPSM155 [ATM] .a >
```

dspimalnks

Display IMA Links

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimalnks** command to display the following configuration information for IMA links.

Information	Description
Link number	This corresponds to the ifIndex of the MIB-II interface on which this link is established. This object also corresponds to the logical number (ifIndex) assigned to this IMA link.
Group number	Identifies the IMA group (imaGroupIndex) of which this link is a member.
Relative delay	The latest measured delay on this link relative to the link, in the same IMA group, with the least delay.
Near-end transmit state	The current state of the near-end transmit link
Near-end receive state	The current state of the near-end receive link.
Near-end receive fail status	The current link failure status of the near-end receive link.
Transmit LID	The outgoing LID used currently on the link by the local end. This value has meaning only if the link belongs to an IMA group.
Receive LID	The incoming LID used currently on the link by the remote end as reported via ICP cells. This value has meaning only if the link belongs to an IMA group.

Syntax

dspimalnks

Syntax Description

No parameters

Related Commands

dspimalnk

Attributes

Log: no

State: active

Privilege: ANYUSER

Example

In the following example, the user displays configuration information for all IMA links.

```
NodeB.6.MPSM155 [ATM] .a > dspimalnks
```

Link Num	Grp Num	Rel Dly (ms)	Ne Tx State	Ne Rx State	NeRx Fail Status	Tx Lid	Rx Lid
1.1	1	0	Usable	Not In Grp	Lif Fail	8	255
1.2	1	0	Usable	Not In Grp	Lif Fail	9	255
1.3	1	0	Active	Active	No Failure	10	10

dspimaparms

Display IMA Parameters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspimaparms** command to display the following IMA configuration information:

- Maximum number of IMA groups that can be supported.
- Current number of IMA groups configured.
- Minimum IMA ID range.
- Maximum IMA ID range.
- Status of IMA group auto-restart mode, either enabled or disabled.
- Status of IMA version fallback mode, either enabled or disabled.

Syntax

dspimaparms

Syntax Description

None

Related Commands

cnfimaparms

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays IMA configuration information.

```
M8830_CH.12.MPSM155 [ATM] .a > dspimaparms
```

```

          IMA Parameters
=====
Max IMA Groups Supported : 42
Configured IMA Groups   : 0
Min IMA ID Range        : 100
Max IMA ID Range        : 200
IMA Ver Fallback         : Enable
IMA Auto-Restart        : Enable
```

dspliccd

Display Card Licenses

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspliccd** command to display the current status of licenses on a service module.

Syntax

dspliccd

Syntax Description

None

Related Commands

moveLIC

Attributes

Log: **No** State: **Any** Privilege: **Any User**

Example

In the following example, the user displays the current status of licenses in slot 4.

```
M8830_CH.4.MPSM155 [FR] .a > dspliccd
Card License Alarm:          None
Service Module Type:        MPSM-T3E3-155
Service Module Serial Number: SAD074204EK
Provisioning (addcon) Allowed: YES
=====
Needed License Type          Needed Licenses
-----
MultiSrvc                    1
Channelize                   1
MultiLink                    1

=====
Allocated License Type       Allocated licenses
-----
MultiSrvc                    1
Channelize                   1
MultiLink                    1

=====
Programmed License Type      Programmed licenses
-----

=====
Programmed License Registered: NO
License registration node:    NONE
License registration chassis: NONE
```

dspln

Display Line

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspln** command to display configuration and state information of a physical line on a card.

The **dspln** command displays the following characteristics for SONET/SDH lines:

Information	Description
Line Number	The number of the interface being displayed, in the format bay.line.
Admin Status	Indicates whether the line is up or down.
Loopback	Indicates whether the line is in loopback mode or not: <ul style="list-style-type: none"> • loopbackMode • NoLoop
Frame Scrambling	Indicates whether Frame Scrambling is enabled or disabled on the line.
Xmt Clock source	The configured clock source. <ul style="list-style-type: none"> • localClk • loopback
Line Type	The line type. For example, dsx3CbitParity
Medium Type (SONET/SDH)	Indicates whether the line medium type is SONET or SDH.
Medium Time Elapsed	Indicates the time that has elapsed for the line since the last interval.
Medium Valid Intervals	Indicates the Medium valid intervals configured for the line.
Medium Line Type	Indicates the medium line type. For example, multi-mode fiber (MMF) or long reach, single-mode fiber (SMF).
Channelized	Indicates whether the line is channelized or unchannelized.
Num of STS-Paths/AUs	Indicates the Number of STS-Paths/AUs on the line.
Provisioned Paths/AUs	Indicates the number of paths and AUs provisioned on the line.
Alarm Status	Indicates the current alarm status of the line: <ul style="list-style-type: none"> • critical • major • minor • clear • unknown • N/A <p>Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.</p>
APS enabled	Indicates whether APS is enabled or disabled on the line.
Number of ATM ports	The number of configured ATM ports on the line.
Number of ATM partitions	The number of configured ATM partitions on the line.

Information	Description
Number of ATM SPVC	The number of configured ATM SPVCs on the line.
Number of ATM SPVP	The number of configured ATM SPVPs on the line.
Number of ATM SVC	The number of configured ATM SVCs on the line.
Number of ATM Sig VC	The number of configured ATM Sig VCs on the line.
Number of FR ports	The number of configured Frame Relay ports on the line.
Number of FR Connections	The number of configured Frame Relay Connections on the line.
Number of IMA links	The number of configured IMA links on the line.
Number of MFR links	The number of configured Multilink Frame Relay bundles.

The **dspln** command displays the following characteristics for DS3/E3 or DS1/E1 lines:

Line Number	The number of the interface being displayed.
Admin Status	Indicates whether the line is up or down.
Line Type	The line type. For example, dsx3CbitParity
Line Coding	The type of coding on the line.
Line Length (meters)	The configured line length in meters (0-64000).
OOF Criteria	Displays the threshold for triggering an out-of-frame condition. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error.
ASIC c-Bits Check	Indicates the status of the Application-specific Integrated Circuit (ASIC) c-Bits check.
Loopback	Indicates whether the line is in loopback mode or not: <ul style="list-style-type: none"> • loopbackMode • NoLoop
Xmt. Clock source	The configured clock source. <ul style="list-style-type: none"> • localClk • loopback
Rcv FEAC Validation	FEAC (far-end alarm and control) code validation criteria. The possible values for <i>LineRcvFEACValidation</i> are: <ul style="list-style-type: none"> • 1 = 4 out of 5: a valid FEAC code is declared if 4 of 5 codes match. • 2 = 8 out of 10: a valid FEAC code is declared when 8 of 10 codes match.
Channelized	Indicates whether or not the line is channelized.

Alarm Status	Indicates the current alarm status of the line: <ul style="list-style-type: none"> • critical • major • minor • clear, • unknown • N/A <p>Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.</p>
Number of ATM ports	The number of configured ATM ports on the line.
Number of ATM partitions	The number of configured ATM partitions on the line.
Number of ATM SPVC	The number of configured ATM SPVCs on the line.
Number of ATM SPVP	The number of configured ATM SPVPs on the line.
Number of ATM SVC	The number of configured ATM SVCs on the line.
Number of ATM Sig VC	The number of configured ATM signaling VCs on the line.
Number of FR ports	The number of configured Frame Relay ports on the line.
Number of FR Connections	The number of configured Frame Relay Connections on the line.
Number of IMA links	The number of configured IMA links on the line.
Number of MFR links	The number of configured Multilink Frame Relay bundles.

Syntax

dspln <*bay.line*>

Syntax Description

bay.line Identifies the line you want to bring down, in the format *bay.line*.

Note Use the **dsplns** command to display the line numbers for all lines on the current card.

Related Commands

upln, **cnfln**

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example (SONET/SDH)

In the following example, the user displays SONET line 1.1.

```
M8850_SF.9.MPSM155[ATM].a > dspIn 1.1
Line Number           : 1.1
Admin Status          : Up
Loopback              : NoLoop
Frame Scrambling      : Enable
Xmt Clock source      : localTiming
Line Type             : sonetStm1
Medium Type (SONET/SDH) : SDH
Medium Time Elapsed   : 82
Medium Valid Intervals : 96
Medium Line Type      : Unknown
Channelized           : Yes
Num of STS-Paths/AUs  : 1
Provisioned Paths/AUs : 1
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```



Note

When APS is enabled, the alarm status line shows the alarm status of the active line.

Example (DS3/E3)

In the following example, the user displays DS3 line 1.1.

```
M8850_SF.10.MPSM155[FR].a > dspIn 1.1
Line Number           : 1.1
Admin Status          : Up
Line Type             : dsx3CbitParity
Line Coding           : ds3B3ZS
Line Length(meters)  : 0
OoFCriteria          : 3Of16Bits
AIS c-Bits Check      : Check
Loopback             : NoLoop
Xmt. Clock source     : localTiming
Rcv FEAC Validation   : 8 out of 10
Channelized           : Enabled
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```



Note

When APS is enabled, the alarm status line shows the alarm status of the active line.

Example (T1/E1)

In the following example, the user displays E1 line 1.1.

```
M8850_SF.27.MPSM16T1E1[ATM].a > dspIn 1.1
Line Number           : 1.1
Admin Status          : Up
Line Type             : dsx1ESF
Line Coding           : dsx1B8ZS
Line Length(meters)  : 1
Loopback             : NoLoop
Xmt. Clock source     : localTiming
Valid Intervals       : 96
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```

dsplnalm

Display Line Alarm

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplnalm** command to display the line and statistical alarm states for the specified line. For DS1/E1 lines, the BERT status is displayed.

Syntax

dsplnalm <*bay.line*>

Syntax Description

bay.line The line to display, in the format *bay.line*.

Note Use the **dsplns** command to display the line numbers for all lines on the current card.

Related Commands

clradjlnalment, **clrlnalment**, **cnflnalm**, **dspadjlnalm**, **dspadjlnalment**, **dsplnalmcnf**, **dsplnalment**, **dsplnalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (SONET/SDH)

In the following example, the user displays the alarm states for SDH line 1.1.

```
M8830_CH.12.MPSM155 [ATM] .a > dsplnalm 1.1
Line Number: 1.1
Alarm State
  Section : Clear
  Line    : Clear
Statistical Alarm State
  Section : Clear
  Line    : Clear
```

Example (DS3)

In the following example, the user displays the alarm states for DS3 line 1.1.

```
M8850_SF.10.MPSM155[FR].a > dsplnalm 1.1
Line Number           : 1.1
Alarm State           : Clear
Statistical Alarm State : Clear
PLCP Alarm State      : Clear
LOCD Alarms State     : Clear
```

Example (E1)

In the following example, the user displays the alarm states for E1 line 1.1.

```
M8850_SF.27.MPSM16T1E1[ATM].a > dsplnalm 1.1
Line Number           : 1.1
Alarm State           : Clear
LOCD Alarm State      : Clear
Bert Operational State : Unconfigured
```

dsplnalmcnf

Display Line Alarm Configuration

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsplnalmcnf** command to display the current statistical alarm thresholds on the specified line. To change the statistical line alarms thresholds, use the **cnflnalm** command.

Syntax

```
dsplnalmcnf -<line_type> <bay.line>
```

Syntax Description

<i>-<line_type></i>	Limits the display to one of the following line types: <ul style="list-style-type: none"> • -sonetsec • -sonetline • -ds3 • -plcp • -e3
<i>bay.line</i>	The line to display, in the format <i>bay.line</i> . <p>Note Use the dsplns command to display the line numbers for all lines.</p>

Related Commands

clrnalmcnt, **cnflnalm**, **dsplnalm**, **dsplnalmcnt**, **dsplnalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (DS3/E3)

In the following example, the user displays alarm thresholds for DS3 line 1.1.

```
M8850_SF.10.MPSM155 [ATM] .a > dsplnalmcnf -ds3 1.1
LineNum: 1.1
Stat Alarm Severity: None
      15min Threshold    24hr Threshold
LCV  :    387            3865
LES  :     86            864
PCV  :    382            3820
PES  :     86            864
PSES :     4             40
SEFS :     2             8
UAS  :    10            10
```

Example (PLCP)

In the following example, the user displays PLCP alarm thresholds for SONET line 1.1.

```
M8850_SF.10.MPSM155 [ATM] .a > dsplnalmcnf -plcp 1.1
LineNum: 1.1
Stat Alarm Severity: None
      15min Threshold    24hr Threshold
BIP-8CV : 315            3584
BIP-8ES : 86             864
BIP-8SES: 4              40
SEFS    : 2              8
UAS     : 10             10
```

Example (Sonet/SDH Line)

In the following example, the user displays line alarm thresholds for SONET line 1.1.

```
M8850_SF.9.MPSM155 [FR] .a > dsplnalmcnf -sonetline 1.1
LineNum: 1.1
Line Stat Alarm Severity: None
      15min Threshold    24hr Threshold
Line  ESs : 20            200
Line  SESs: 3             7
Line  CVs : 25            250
Line  UASs: 10            10
```

Example (Sonet/SDH Section)

In the following example, the user displays section alarm thresholds for SONET line 1.1.

```
M8850_SF.9.MPSM155 [FR] .a > dsplnalmcnf -sonetsec 1.1
LineNum: 1.1
Section Stat Alarm Severity: None
      15min Threshold    24hr Threshold
Section ESs : 20            200
Section SESs : 3             7
Section SEFSs: 3             7
Section CVs  : 25            250
```

dsplnalmcnt

Display Line Alarm Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplnalmcnt** command to display the statistics counters for a specified line. The alarm counters indicate how many times each type of active alarm has occurred since the counters were last cleared.

Syntax

dsplnalmcnt <*bay.line*>

Syntax Description

bay.line The line to display, in the format *bay.line*.

Note Use the **dsplns** command to display the line numbers for all lines.

Related Commands

clrnalmcnt, **cnfnalm**, **dsplnalm**, **dsplnalmcntf**, **dsplnalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (DS1/E1)

In the following example, the user displays statistics counters for DS1 line 1.10.

```
M8850_SF.25.MPSM16T1E1[FR].a > dsplnalmcnt 1.10
```

```
Line Number:            1.10
Elapsed Time(in sec): 807
```

```
Near End
CurrentESs            : 10
CurrentLCVs           : 0
CurrentLESS           : 9
CurrentSESS           : 10
CurrentSEFSS          : 0
CurrentPCVs           : 0
CurrentUASS           : 24
```

Example (DS3)

In the following example, the user displays statistics counters for DS3 line 1.1.

```
M8850_SF.10.MPSM155[FR].a > dsplnalmcnt 1.1

Line Number:      1.1
Elapsed Time(in sec): 397
Num of LOS       : 0
Num of OOF       : 0
Num of RAI       : 0
Near End
CurrentCCVs      : 0
CurrentCESS      : 0
CurrentCSESS     : 0
CurrentUASS      : 6
CurrentLCV       : 0
CurrentLES       : 0
CurrentLSES      : 0
CurrentPCV       : 0
CurrentPES       : 0
CurrentPSES      : 0
Current24HrLCV   : 0
Current24HrLES   : 0
Current24HrLSES  : 0
Current24HrPCV   : 0
Current24HrPES   : 0
Far End
CurrentCCVs      : 0
CurrentCESS      : 0
CurrentCSESS     : 0
CurrentUASS      : 6

Type <CR> to continue, Q<CR> to stop:
Current24HrPSES  : 0
Current24HrCCV  : 0
Current24HrCES   : 0
Current24HrCSES  : 0
Current24HrUAS   : 0

PLCP PM :
-----
CurrentBIP-8CV   : 0
CurrentBIP-8ES   : 0
CurrentBIP-8SES  : 0
CurrentSEFS      : 0
CurrentUAS       : 0
Num of OOF       : 0
Num of RAI       : 0
Num of FE Count  : 0
Num of FESEc     : 0
Num of SEFESEc   : 0
Num of FEBE      : 0
Num of FEBESEc   : 0
Num of SEFEBESEc : 0
```

Example (E3)

In the following example, the user displays statistics counters for E1 line 1.1.

```
M8850_SF.10.MPSM155[FR].a > dsplnalmcnt 1.1

Line Number      : 1.1
Elapsed Time(in sec): 88
Num of LOS       : 0
Num of OOF       : 0
Num of RAI       : 0
Near End
CurrentPCVs      : 0
Far End
CurrentPCVs      : 0
```

```

CurrentPESS      : 0
CurrentPSESSs   : 0
CurrentUASS      : 88
CurrentLCV       : 0
CurrentLES       : 0
CurrentSEFS      : 0
CurrentLSES      : 0
Current24HrLCV  : 0
Current24HrLES   : 8
Current24HrPCV  : 0
Current24HrPES   : 8
Current24HrPSES  : 8
Current24HrSEFS  : 0
Current24HrUAS   : 1430
Current24HrLSES  : 8
CurrentPESS      : 0
CurrentPSESSs   : 0
CurrentUASS      : 0

```

Example (SDH/SDH)

In the following example, the user displays statistics counters for SDH line 1.1.

```

M8850_SF.9.MPSM155 [ATM] .a > dspInalmcnt 1.1
Line Number      : 1.1
Elapsed Time(in sec): 530
Section PM:
-----
Num of LOSSs     : 0
Num of LOFs      : 0
CurrentESs       : 0
CurrentSESSs     : 0
CurrentSEFSs     : 0
CurrentCVs       : 0
Current24HrESS   : 0
Current24HrSESSs : 0
Current24HrSEFSs : 0
Current24HrCVs   : 0
Line PM:
-----
Num of AISs: 0
Num of RFIs: 0
Near End
CurrentESs    : 0
CurrentSESSs  : 0
CurrentCVs    : 0
Far End
CurrentESs    : 0
CurrentSESSs  : 0
CurrentCVs    : 0

Type <CR> to continue, Q<CR> to stop:
CurrentUASS    : 0
Current24HrESS : 0
Current24HrSESSs : 0
Current24HrCVs : 0
Current24HrUASs : 0
CurrentUASS    : 0
Current24HrESS : 0
Current24HrSESSs : 0
Current24HrCVs : 0
Current24HrUASs : 0

```


dsplnalms

Display Line Alarms

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplnalms** command to display line and statistical alarms for all lines on the current card.

Syntax

dsplnalms

Syntax Description

None.

Related Commands

clrlnalment, enflnal, dsplnal, dsplnalment, dsplnalment

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example (DS1/E1)

In the following example, the user displays the line and statistical alarms for all DS1 lines on the current card.

```
M8850_SF.27.MPSM16T1E1 [ATM] .a > dsplnalms
```

```
-----
Line Number           : 1.1
Alarm State           : Clear
LOCD Alarm State      : Clear
Bert Operational State : Unconfigured

Line Number           : 1.2
Alarm State           : Clear
LOCD Alarm State      : Clear
Bert Operational State : Unconfigured

Line Number           : 1.3
Alarm State           : Clear
LOCD Alarm State      : Clear
Bert Operational State : Unconfigured

Line Number           : 1.4
Alarm State           : Clear
LOCD Alarm State      : Clear
Bert Operational State : Unconfigured
...
```

Example (DS3/E3)

In the following example, the user displays the line and statistical alarms for all DS3 lines on the current card.

```
.mpsm_node1.9.MPSM155 [ATM] .a > dsplnals
-----
Line Number      : 1.1
  Alarm State      : Clear
  Statistical Alarm State: No Statistical Alarms
  LOCD Alarm State : Clear
Line Number      : 1.2
  Alarm State      : Clear
  Statistical Alarm State: No Statistical Alarms
  LOCD Alarm State : Clear
Line Number      : 1.3
  Alarm State      : Clear
  Statistical Alarm State: No Statistical Alarms
  LOCD Alarm State : Clear
```

Example (SONET/SDH)

In the following example, the user displays the line and statistical alarms for all SDH lines on the current card.

```
.M8850_SF.9.MPSM155 [ATM] .a > dsplnals
-----
Line Number: 1.1
Alarm State
  Section : Clear
  Line    : Clear
Statistical Alarm State
  Section : Clear
  Line    : Clear

Line Number: 1.2
Alarm State
  Section : Clear
  Line    : Clear
Statistical Alarm State
  Section : Clear
  Line    : Clear
```

dsplnload

Display Line Load

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplnload** command to display line load statistics. The information provided by the **dsplnload** command display can help you determine the current percent of utilization and cell count on a line that has been configured for ATM service. Using the parameters provided by **dspln**, you can determine whether the current load on the line needs modification or troubleshooting.



Note

The **dsplnload** command is valid only on T3 or E3 lines that are configured for ATM service. Use the **dspatmlayerload** command to determine the current percent of utilization and cell count for Sonet lines that are configured for ATM service.

Syntax

```
dsplnload <bay.line>
```

Syntax Description

bay.line The line to display, in the format *bay.line*.

Note Use the **dsplns** command to display the line numbers for all lines on the current card.

Related Commands

dsplns, **dspln**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the load on line 1.1. The display shows that no cells are traversing this line.

```
mpsm_node1.9.MPSM155 [ATM] .a > dsplnload 1.1
Getting the stats. Please wait ...
                Ingress      Egress
Cell rate (cps)      : 0          0
Utilization (percentage) : 0.00      0.00
```

dsplnpmbucketcnt

Display Line Performance Bucket Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplnpmbucketcnt** command to display the interval performance monitoring counters for a line.

Syntax

dsplnpmbucketcnt *<bay.line>* *<intvl>*

Syntax Description

<i>bay.line</i>	Identifies the line whose performance monitoring counters you want to display, in the format <i>bay.line</i> .
Note	Use the dsplns command to display the line numbers for all lines on the current card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Related Commands

dsplmncnt

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (SONET/SDH)

In the following example, the user displays the line specific performance monitoring counters from the most recent interval for SDH line 1.1.

```

mpsm_node.5.MPSM155 [ATM] .a > dsplnmbucketcnt 1.1 1
Line Number      : 1.1
Interval Number  : 1
Section PM:
-----
ESs      : 0
SESSs    : 0
SEFSSs   : 0
CVs      : 0

Line PM:
-----
          Near End          Far End
ESs      : 0                0
SESSs    : 0                0
CVs      : 0                0
UASs     : 0                0

```

Example (DS3/E3)

In the following example, the user displays the line specific performance monitoring counters from the most recent interval for E3 line 1.1.

```

M8850_SF.10.MPSM155 [ATM] .a > dsplnmbucketcnt 1.1 1
Line Number      : 1.1
Interval        : 1

          Near End          Far End
CCVs         : 0                0
CESs         : 0                0
CSESSs       : 0                0
UASs         : 0                0
PESs         : 0
PSESSs       : 0
SEFSSs       : 0
LCVs         : 0
PCVs         : 0
LESSs        : 0

```

Example (DS1/E1)

In the following example, the user displays the line specific performance monitoring counters from the most recent interval for DS1 line 1.1.

```

M8850_SF.27.MPSM16T1E1 [ATM] .a > dsplnmbucketcnt 1.1 1
Line Number      : 1.1
Interval        : 1

          Near End          Far End
ESs           : 0                0
SESSs         : 0                0
SEFSSs        : 0                0
UASs          : 0                0
PCVs          : 0                0
LESSs         : 0                0

```

dsplns

Display Lines

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsplns** command to display the configuration for all lines on a card. (For information on an individual line, use **dspln**.) The variations that can exist in display contents depends on the card, as follows:

The **dsplns** command displays the following characteristics for SONET/SDH lines:

Information	Description
Sonet Line	The number of the interface being displayed, in the format bay.line.
Line State	Indicates whether the line is up or down.
LineType	The line type. For example, sonetSts3c
Line Lpbk	Indicates whether the line is in loopback mode: <ul style="list-style-type: none"> • loopbackMode • NoLoop
Frame Scramble	Indicates whether Frame Scrambling is enabled or disabled on a SONET/SDH line.
Medium Line Coding	The type of medium line coding on a SONET/SDH line.
Medium Line Type	Indicates the medium line type on a SONET/SDH line. For example, multi-mode fiber (MMF) or long reach, single-mode fiber (SMF).
Valid Intvl	Indicates the valid intervals configured for the line.
Alarm State	Indicates the current alarm status of the line: <ul style="list-style-type: none"> • critical • major • minor • clear • unknown
APS Enabled	Indicates whether APS is enabled or disabled on a SONET/SDH line.
Channelized	Indicates whether or not the SONET/SDH line is channelized.
Length	The length of a DS3/E3 line.
OOF Criteria	The criteria for out-of-frame state for a DS3/E3 line.
AIS cBit Check	The alarm indication signal cBit check state for a DS3/E3 line.



Note

The alarm status for standby cards is reported as N/A when the alarm status of the standby card is not the same as the alarm status for the active card.

Syntax

dsplns

Syntax Description

No parameters

Related Commands

cnfln, delln, dspln, dnln, upln

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (SONET/SDH)

In the following example, the user displays all SDH lines on an MPSM-T3E3-155 card.

```
mpsm_node.5.MPSM155 [ATM] .a > dspIn
```

Sonet Line	Line State	Line Type	Line Lpbk	Frame Scramble	Medium Line Coding	Medium Line Type	Valid Intvls	Alarm State	APS Enabled	Channelized
1.1	Up	sonetStm1	NoLoop	Enable	NRZ	MMF	16	Clear	Disable	Yes
1.2	Down	sonetSts3c	NoLoop	Enable	NRZ	MMF	0	Clear	Disable	No

Example (DS3/E3)

In the following example, the user displays all DS3 lines on an MPSM-T3E3-155 card.

```
M8850_SF.10.MPSM155 [ATM] .a > dspIn
```

Line Num	Line State	Line Type	Line Lpbk	Length (meters)	OOFCriteria	AIS cBitsCheck	Valid Intvls	Alarm State
1.1	Up	dsx3CbitParity	NoLoop	0	30f16Bits	Check	0	Clear
1.2	Up	dsx3CbitParity	NoLoop	0	30f16Bits	Check	0	Clear
1.3	Up	dsx3CbitParity	NoLoop	0	30f16Bits	Check	0	Clear

Example (DS1/E1)

In the following example, the user displays all DS1 lines on an MPSM-16-T1E1 card.

```
mpsm_node.5.MPSM16T1E1PPP.a > dspIn
```

Line Num	Line State	Line Type	Line Lpbk	Length (meters)	Valid Intvls	Alarm State
1.1	Up	dsx1ESF	Local	1	0	Clear
1.2	Down	dsx1ESF	NoLoop	1	0	Clear
1.3	Down	dsx1ESF	NoLoop	1	0	Clear
1.4	Down	dsx1ESF	NoLoop	1	0	Clear
...						

dspload

Display Load

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspload** command to display the current level of usage of various parameters on a partition. To convey a picture of what is available on a resource partition, the display shows the configured bandwidth and connection numbers and resource utilization.

Syntax (ATM Service Context)

```
dspload <ifNum> <partId>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition load to display.
Note	The MPSM cards must be in the ATM CLI context if you want to delete a partition from an ATM port.
Note	Enter the dspparts command in the ATM CLI context to display the port numbers and partition IDs for all active ATM ports.
<i>part_id</i>	A number that identifies the partition, in the range 1-20.

Syntax (Frame Relay Service Context)

```
dspload <ifNum> <CtrlNum>
```

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	The interface number (partition number) of the partition load to display.
Note	The MPSM cards must be in the Frame Relay CLI context if you want to delete a partition from a Frame Relay port.
Note	Enter the dspparts command in the Frame Relay CLI context to display the all partition and controller numbers associated with Frame Relay ports.
<i>CtrlNum</i>	Identifies the Controller number.

Related Commands

dsprscrtn, addcon, dspcons, dspcon, cnfcon

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the load on partition number 1, logical port 127.

```
M8850_SF.9.MPSM155[ATM].a > dspload 127 1
```

```

+-----+
| I N T E R F A C E   L O A D   I N F O |
+-----+
| Maximum Channels      : 0004000 |
| Guaranteed Channels   : 0000000 |
| Igr Maximum Bandwidth : 0003000 |
| Igr Guaranteed Bandwidth: 0003000 |
| Egr Maximum Bandwidth : 0003000 |
| Egr Guaranteed Bandwidth: 0003000 |
| Available Igr Channels : 0003999 |
| Available Egr Channels : 0003999 |
| Available Igr Bandwidth : 0003000 |
| Available Egr Bandwidth : 0003000 |
+-----+
|           E X C E P T -- V A L U E S           |
+-----+
| SERV-CATEG | VAR-TYPE | INGRESS | EGRESS |
|   CBR      | Avl Chnl | 0003999 | 0003999 |
| VBR-RT    | Avl Chnl | 0003999 | 0003999 |
|   CBR      | Avl Bw   | 0003000 | 0003000 |
| VBR-RT    | Avl Bw   | 0003000 | 0003000 |
+-----+

```

Example (Frame Relay Service Context)

In the following example, the user displays the load on controller number 2, logical port 11.

```
M8850_SF.27.MPSM16T1E1[FR].a > dspload 11 2
```

```

+-----+
| I N T E R F A C E   L O A D   I N F O |
+-----+
| Used Igr Bandwidth   (bps) :      1536000 |
| Available Igr Bandwidth (bps) :           0 |
| Used Egr Bandwidth   (bps) :      1536000 |
| Available Egr Bandwidth (bps) :           0 |
| Used Channels        :           1 |
| Available Channels   :      1999 |
+-----+

```

dspmfrbundle

Display Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrbundle** command to display configuration information and operational status for an MFR bundle.

Syntax

dspmfrbundle *<bundleNumber>*

Syntax Description

bundleNumber Identifies the MFR bundle number.

Note Enter the **dspmfrbundles** command to display all MFR bundles on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

addmfrbundle, cnfmfrbundle, delmfrbundle

Example

In the following example, the user displays MFR bundle 1.

```
M8850_SF.10.MPSM155[FR].a > dspmfrbundle 1
  Bundle Number           : 1
  Activation Class        : A
  Minimum Links           : 1
  Admin state              : Up
  Oper State              : Up
  Hello Timer (seconds)   : 10
  Ack Timer (seconds)     : 4
  Max Retry Count         : 2
  Maximum Bundle Links    : 12
  Configured Number of Links : 4
  Active Number of Links  : 4
  Available Bandwidth     : 6176000
  Near End Bundle Name    : M8850_SF.Slot10.Bundle01
  Far End Bundle Name     : M8850_SF.Slot10.Bundle02
```

dspmfrrbundlealm

Display Multi-link Frame Relay Bundle Alarm

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrbundlealm** command to display the alarm status of an MFR bundle.

Syntax

dspmfrrbundlealm *<bundleNum>*

Syntax Description

<i>bundleNum</i>	Identifies the MFR bundle number.
Note	Enter the dspmfrrbundles command to display all MFR bundles on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

dspmfrrbundlealms

Example

In the following example, the user displays the alarm status of MFR bundle 1.

```
M8850_SF.10.MPSM155 [FR] .a > dspmfrrbundlealm 1
```

```
Bundle Number           : 1
Admin State              : Up
Oper State               : Up
Alarm State              : Clear
```

dspmfrbundlealms

Display Multi-link Frame Relay Bundle Alarm

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrbundlealms** command to display alarm status for all MFR bundles provisioned on the card.

Syntax

dspmfrbundlealms

Syntax Description

None

Attributes

Log: no State: active Privilege: any

Related Commands

dspmfrbundlealm

Example

In the following example, the user displays the alarm status of all MFR bundles.

```
MM8850_SF.10.MPSM155 [FR] .a > dspmfrbundlealms
Mfr      Admin   Oper    Alarm
Bundle  State   State   State
-----
      1     Up     Up     Clear
      2     Up     Up     Clear
```

dspmfribundlebucketcnt

Display Multi-link Frame Relay Interval Counters

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfribundlebucketcnt** command to display interval statistics for an MFR bundle.

Syntax

dspmfribundlebucketcnt <group> <intvl>

Syntax Description

<i>group</i>	Identifies the MFR bundle number.
	Note Enter the dspmfribundles command to display all MFR bundles on the card.
<i>intvl</i>	Stastics interval number, in the range 0-96

Attributes

Log: no State: active Privilege: any

Related Commands

dspmfribucketcnt, **dspmfribundles**

Example

In the following example, the user displays statistics for interval 1 on MFR bundle 2.

```
M8850_SF.10.MPSM155 [FR] .a > dspmfribundlebucketcnt 2 1
  Bundle Number           : 2
  Interval Number         : 1

  Resequenece Errors      : 0
```

dspmfrbundlecnt

Display Multi-link Frame Relay Bundle Counters

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrbundlecnt** command to display statistics for an MFR bundle.

Syntax

dspmfrbundlecnt *<bundleNum>*

Syntax Description

<i>bundleNum</i>	Identifies the MFR bundle number.
Note	Enter the dspmfrbundles command to display all MFR bundles on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

clrmfrbundlents, **dspmfrbundles**

Example

In the following example, the user displays the counters on MFR bundle 1.

```
M8850_SF.10.MPSM155[FR].a > dspmfrbundlecnt 1
  Bundle Number           : 1
  Resequence Errors       : 0
```

dspmfribundles

Display Multi-link Frame Relay Bundles

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfribundles** command to display summary information for all MFR bundles.

Syntax

dspmfribundles

Syntax Description

None

Attributes

Log: no State: active Privilege: any

Related Commands

addmfrbundle, cnfmfrbundle, delmfrbundle

Example

In the following example, the user displays all MFR bundles.

```
M8850_SF.10.MPSM155[FR].a > dspmfribundles
Mfr      Activation  Minimum  Configured  Active  Admin  Oper  Max Diff
Bundle   Class         Links    Links      Links  State  State  Delay
-----
        1          A         1          4         4     Up    Up      300
        2          A         1          4         4     Up    Up      300
```

dspmfrrnk

Display a Multi-link Frame Relay Link

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrnk** command to display an MFR link.

Syntax

dspmfrrnk *<link>*

Syntax Description

<i>link</i>	Identifies the MFR link number to display.
Note	Enter the dspmfrrnks command to display all MFR links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmfrrnk, cnmfrrnk, delmfrrnk, dspmfrrnks

Example

In the following example, the user displays MFR link 1.1:3.

```
M8850_SF.10.MPSM155[FR].a > dspmfrrnk 1.1:3
  Link Number           : 1.1:3
  Bundle Number         : 1
  Link State             : Up
  Link Alarm State      : Clear
  Link Delay (Rtt in msec) : 21
  Link Near End Name     : M8850_SF.Slot10.Link03
  Link Far End Name     : M8850_SF.Slot10.Link31
  Link Far End Bundle Name : M8850_SF.Slot10.Bundle02
  Link PHY Operational Status : Up
```


dspmfrrlinkalm

Displays Multi-link Frame Relay Link Alarm

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrlinkalm** command to display alarm status of a link.

Syntax

dspmfrrlinkalm <link>

Syntax Description

<i>link</i>	Identifies the MFR link number.
Note	Enter the dspmfrrlinks command to display all MFR links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmfrrlink, cnmfrrlink, dspmfrrlink

Example

In the following example, the user displays alarms on link 1.1:3.

```
M8850_SF.10.MPSM155 [FR] .a > dspmfrrlinkalm 1.1:3
```

```
Link Number           : 1.1:3
Bundle Number         : 1
Link State             : Up
Link Alarm State       : Clear
PHY Operational Status : Up
```

dspmfrrlnkalms

Displays Multi-link Frame Relay Link Alarms

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrlnkalms** command to display alarm status for all links associated with MFR bundles.

Syntax

dspmfrrlnkalms

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

dspmfrrlnkalm

Example

In the following example, the user displays link alarms.

```
M8850_SF.10.MPSM155[FR].a > dspmfrrlnkalms
Link      Bundle  Link      Link Alarm  PHY Oper
Num      Num     State     State       State
-----
  1.1:3    1       Up        Clear       Up
  1.1:4    1       Up        Clear       Up
  1.1:5    1       Up        Clear       Up
  1.1:6    1       Up        Clear       Up
  1.2:3    2       Up        Clear       Up
  1.2:4    2       Up        Clear       Up
  1.2:5    2       Up        Clear       Up
  1.2:6    2       Up        Clear       Up
```

dspmfrrlnkbucketcnt

Display Multi-link Frame Relay Interval Statistics

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrlnkbucketcnt** command to display interval statistics for an MFR link.

Syntax

dspmfrrlnkbucketcnt <link> <intvl>

Syntax Description

<i>link</i>	Identifies the MFR link number for which to display statistics. Note Enter the dspmfrrlnks command to display all MFR links on the card.
<i>intvl</i>	Statistics interval, in the range 0-96

Attributes

Log: no State: active Privilege: any

Related Commands

dspmfrrlnkcnt, **dspmfrrlnks**

Example

In the following example, the user displays statistics for interval 1 of link 1.1:3.

```
M8850_SF.10.MPSM155[FR].a > dspmfrrlnkbucketcnt 1.1:3 1
Link Number           : 1.1:3
Interval Number       : 1
Frames Control Tx     : 170
Frames Control Rx     : 170
Frames Control Invalid Rx : 0
Timer Expired Count   : 0
Loopback Suspected Count : 0
Unexpected Sequence Count : 0
Mismatch Count        : 0
```

dspmfrlnkcnt

Display Multi-link Frame Relay Link Statistics

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrlnkcnt** command to display statistics for an MFR link.

Syntax

dspmfrlnkcnt <link>

Syntax Description

<i>link</i>	Identifies the MFR link number for which to display statistics.
Note	Enter the dspmfrlnks command to display all MFR links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

dspmfrlnkbucketcnt

Example

In the following example, the user displays statistics for link 1.1:3 in MFR bundle 1.

```
M8850_SF.10.MPSM155[FR].a > dspmfrlnkcnt 1.1:3
Link Number                : 1.1:3
Bundle Number              : 1
Link State                  : Up
Control Frames Tx on Link  : 10988
Control Frames Rx on Link  : 10980
Invalid Control Frames Rx on Link : 0
Timer Expired Count        : 8
Loopback Suspected Count   : 0
Delayed/Duplicated Frames  : 0
Inconsistent Bundle Count  : 0
```

dspmfrrlnks

Display Multi-link Frame Relay Links

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **dspmfrrlnks** command to display summary information about all MFR links.

Syntax

dspmfrrlnks

Syntax Description

None

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

addmfrrlnk, delmfrrlnk, cnfmfrrlnk, dspmfrrlnk

Example

In the following example, the user displays all MFR links on a bundle.

```
M8850_SF.10.MPSM155 [FR] .a > dspmfrrlnks
  Link      Bundle      Link  Link Alarm      Link      PHY Oper
  Num       Num         State State      Delay(ms)  State
-----
  1.1:3      1          Up    Clear          21        Up
  1.1:4      1          Up    Clear          21        Up
  1.1:5      1          Up    Clear          20        Up
  1.1:6      1          Up    Clear          19        Up
  1.2:3      2          Up    Clear          21        Up
  1.2:4      2          Up    Clear          21        Up
  1.2:5      2          Up    Clear          20        Up
  1.2:6      2          Up    Clear          20        Up
```

dspmpbundle

Display MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspmpbundle** command to display an MLPPP bundle.

Syntax

dspmpbundle <bundleNumber>

Syntax Description

bundleNumber Specifies the MLPPP bundle number to display.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: no

State: active

Privilege: any

Related Commands

addmpbundle, **cnfmpbundle**, **delmpbundle**

Example

In the following example, the user displays MLPPP bundle 1 on an MPSM-16-T1E1.

```
REDSTONE.6.MPSM16T1E1PPP[FR].a > dspmpbundle 1
  Bundle Number      : 1
  Admin State        : Up
  Oper State         : Up
  Alarm Cause        : No Alarm
  MRRU               : 1100
  SeqNumFormat       : 24 bit
  Fragmentation      : Disable
  EndpointDiscrimClass : Locally Assigned
  EndpointDiscriminator : TestNode.6.1
  LinksConfigured    : 1
  LinksActive        : 1
  RemoteMRRU         : 1100
  RemoteEndpDiscrimClass : Locally Assigned
  RemoteEndpDiscriminator : TestNode.6.1
  Configured Bandwidth : 1344000
  Available Bandwidth  : 1344000
```

dspmpbundlecnt

Display Statistics on an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspmpbundlecnt** command to display MLPPP bundle statistics.

Syntax

dspmpbundlecnt *<bundleNumber>* *<intvl>*

Syntax Description

<i>bundleNumber</i>	Specifies the MLPPP bundle number for which to display statistics.
Note	Enter the dspmpbundles command to display all MLPPP bundles on the card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Attributes

Log: no State: active Privilege: any

Related Commands

dspmpbundle

Example

In the following example, the user displays statistics for interval 1 of MLPPP bundle 5 on an MPSM-16-T1E1:

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dspmpbundlecnt 5 1
MLPPP Bundle Number      : 5
Interval Number          : 1

Receive Packets           :          720
Receive Bytes             :         10080
Receive Discard Bytes     :           0
Receive MRRU Error Packets :           0
Receive Discard Packets   :           0
Receive FCS Error Packets :           0
Send Packets              :          1053
Send Bytes                :         24399
```

In the following example, the user displays statistics for interval 1 of MLPPP bundle 1 on an MPSM-T3E3-155:

```
M8850_SF.10.MPSM155PPP[FR].a > dspmpbundlecnt 1 1
MLPPP Bundle Number      : 1
Interval Number          : 1

Receive Packets           :      32
Receive Bytes             :      470
Receive Discard Bytes     :         0
Receive MRRU Error Packets :         0
Receive Discard Packets   :         0
Send Packets              :      46
Send Bytes                 :      638
```


dspmpbundleload

Display the load on an MLPPP bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspmpbundleload** command to display interval loads for an MLPPP bundle.

Syntax

dspmpbundleload *<bundleNumber>* *<intvl>*

Syntax Description

<i>bundleNumber</i>	Specifies the MLPPP bundle number.
Note	Enter the dspmpbundles command to display all MLPPP bundles on the card.
<i>intvl</i>	The number of previous intervals to display, in the range 0–96. Interval 0 is the current interval and interval 96 is the oldest 15-minute interval.

Attributes

Log: no State: active Privilege: any

Related Commands

dspwpbundles, dspwinpathload

Example

In the following example, the user displays loads during intervals 0 through 3 for bundle 2:

```
M8850_SF.9.MPSM155PPP[FR].a > dspmpbundleload 2 3
MLPPP Bundle Number      : 2
  Intval   Duration      Rx Packets/s  Tx Packets/s  Rx Bytes/s    Tx Bytes/s
  -----
    0      4min 26s      0           0           4             4
    1      15min 0s      0           0           4             4
    2      15min 0s      0           0           4             4
    3      15min 0s      0           0           4             4
```

dspmpbundleparams

Display MLPPP Bundle Parameters

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspmpbundleparams** command to display the Layer 2 QoS configuration for a bundle.

Syntax

dspmpbundleparams *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MLPPP bundle.

Note Enter the **dspmpbundles** command to display all MLPPP bundles on the card.

Attributes

Log: no

State: active

Privilege: any

Related Commands

cnfmpbundleparams

Example

In the following example, the user displays Layer 2 QoS parameters for MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dspmpbundleparams 5
```

```
MP Bundle (5) HW Parameters
-----
Queue[0] Threshold      : 100
Queue[1] Threshold      : 100
Queue[2] Threshold      : 100
Normalized PVC Bandwidth : 8600
AutoBandwidth Mode      : Enable
```

dspmpbundles

Display MLPPP Bundles

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspmpbundles** command to display summary information about all MLPPP bundles.

Syntax

dspmpbundles

Syntax Description

None

Attributes

Log: no State: active Privilege: any

Related Commands

addmpbundle, cnfmpbundle, delmpbundle, dspmpbundle, dspwpbundles

Example

In the following example, the user displays all MLPPP bundles on an MPSM-16-T1E1 card:

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dspmpbundles
MLPPP Admin Oper Active Available Alarm MUX AutoBW
Bundle State State Links Bandwidth Cause Status Mode
-----
  2     Up   Up    1    1984000 No Alarm Enable Enable
  5     Up   Up    4    7936000 No Alarm Enable Enable
 13     Up   Up    4    7936000 No Alarm Enable Enable
```

The following example, the user displays all MLPPP bundles on an the MPSM-T3E3-155 card:

```
M8850_SF.10.MPSM155PPP[FR].a > dspmpbundles
MLPPP Admin Oper Active Available Alarm MUX AutoBW WP
Bundle State State Links Bandwidth Cause Status Mode Id
-----
  1     Up   Up    2    3072000 No Alarm Enable Enable 1
  2     Up   Up    2    3072000 No Alarm Enable Enable 2
```

dsppart

Display Resource Partition

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsppart** command to display information about one resource partition. The displayed information is shown in the example.



Note

The **dsppart** and **dsprscrprt** commands are identical. The name “dsprscrprt” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.



Note

The connection count includes control VCs when you execute **dsppart** on the CLI of a service module.

The total number of connections in the display includes control VCs. The types of control VCs are SSCOP, PNNI-RCC, and ILMI (if ILMI is enabled on an MPSM-T3E3-155 card). To display the connection counts that do not include control VCs, use **dsppnport**.

Syntax (ATM Service Context)

dsppart <ifnum> <partid>

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to display.
Note	The MPSM cards must be in the ATM CLI context if you want to delete a partition from an ATM port.
Note	Enter the dspparts command in the ATM CLI context to display the port numbers and partition IDs for all active ATM ports.
<i>part_id</i>	A number that identifies the partition, in the range 1-20.

Syntax (Frame Relay Service Context)

dsppart <ifNum> <ctrlNum>

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to display.
Note	The MPSM cards must be in the Frame Relay CLI context if you want to delete a partition from a Frame Relay port.
Note	Enter the dspparts command in the Frame Relay CLI context to display the all partition and controller numbers associated with Frame Relay ports.
<i>CtrlNum</i>	Identifies the Controller number.

Related Commands**addpart, cnfpart, delpart, dspparts****Attributes**

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays resource partition 1 on logical port 12.

```

mpsm_node.4.MPSM155 [ATM] .a > dsppart 12 1
  Interface Number           : 12
  Partition Id               : 1
  Controller Id              : 2
  egr Guaranteed bw(.0001percent): 1000000
  egr Maximum bw(.0001percent) : 1000000
  ing Guaranteed bw(.0001percent): 1000000
  ing Maximum bw(.0001percent) : 1000000
  min vpi                    : 0
  max vpi                    : 255
  min vci                    : 32
  max vci                    : 65535
  guaranteed connections     : 0
  maximum connections        : 4000
  Number of SPVC             : 1
  Number of SPVP             : 0
  Number of SVC              : 0
  Number of Sig VC           : 0

```

Example (Frame Relay Service Context)

In the following example, the user displays resource partition 2 on logical port 2.

```

mpsm_node.5.MPSM155 [FR] .a > dsppart 2 2
  Interface Number           : 2
  Partition Id               : pnni
  Controller Id              : 2
  Available LCNs             : 4000
  Min DLCI                   : 0
  Max DLCI                   : 1023
  Ingress Percentage Bandwidth : 100
  Egress Percentage Bandwidth  : 100
  Number of SPVC             : 0

```

dspparts

Display Resource Partitions

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspparts** command to display information for all the resource partitions on the current card. The displayed information is shown in the example.

For information on specific elements of a resource partition, see the description of the **addpart** command.



Note

The **dspparts** and **dsprscprtns** commands are identical. The name “dsprscprtns” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.

Syntax

dspparts

Related Commands

addpart, delpart, cnfpart, dsppart

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all resource partitions.

```
mpsm_node.4.MPSM155[ATM].a > dspparts
if part Ctlr egr egr ingr ingr min max min max min max
Num ID ID GuarBw MaxBw GuarBw MaxBw vpi vpi vci vci conn conn
      (.0001%) (.0001%) (.0001%) (.0001%)
-----
12  1  2 1000000 1000000 1000000 1000000  0 255  32 65535  0 4000
13  1  2 1000000 1000000 1000000 1000000  0 255  32 65535  0 4000
```

Example (Frame Relay Service Context)

In the following example, the user displays all resource partitions.

```
mpsm_node.5.MPSM155[FR].a > dspparts
if Ctlr Ctlr available min max ingr egr
Num Num ID LCNs DLCI DLCI PctBw PctBw
-----
  2 pnni  2  4000  0  1023  100  100
 50 pnni  2  2000  0  1023  100  100
```

dsppath

Display Path

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppath** command to display configuration and state information for a specified path.

The **dsppath** display varies by path type. The following table describes the display fields for all path types.

Information	Description
Path Number	Identifies the path you are displaying.
Payload	<p>Indicates the payload type for the specified path. For example, ds3. Possible path payloads are:</p> <ul style="list-style-type: none"> • ds3 • vt15vc11 • vt2vc12 • e3 • vtStructured <p>Note The dsppath command displays the <i>payload</i> only for STS and VT-structured paths. When you enter the dsppath command on VT1.5/VC11 or VT2/VC12 paths, the <i>payload</i> characteristic simply indicates whether the specified path is “Up” or Down.” The <i>payload</i> characteristic is not displayed at all for DS3, E3, DS1, or E1 paths.</p>
Admin Status	<p>Indicates whether the path is administratively up or down.</p> <p>Note The <i>Admin Status</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Operational State	Indicates whether the path is operationally up or down.
Path Type	Indicates the path type of the specified path. Possible path types are sts, vt, ds3, or ds1.
Width	<p>Indicates the width of the specified path. The possible values for this parameter are:</p> <ul style="list-style-type: none"> • 1 = sts1_stm0 • 3 = sts3c_stm1 <p>Note The <i>Width</i> is displayed only for STS, VT 1.5/VC 11, VT 2/VC 12, and VT-structured paths.</p>

Information	Description
Alarm Status	<p>Indicates the current alarm status of the path:</p> <ul style="list-style-type: none"> • critical • major • minor • clear • unknown • N/A <p>Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.</p>
Number of ATM ports	<p>The number of configured ATM ports on the path.</p> <p>Note The <i>Number of ATM ports</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of ATM partitions	<p>The number of configured ATM partitions on the path.</p> <p>Note The <i>Number of ATM partitions</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of ATM SPVC	<p>The number of configured ATM SPVCs on the path.</p> <p>Note The <i>Number of ATM SPVC</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of ATM SPVP	<p>The number of configured ATM SPVPs on the path.</p> <p>Note The <i>Number of ATM SPVP</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of ATM SVC	<p>The number of configured ATM SVCs on the path.</p> <p>Note The <i>Number of ATM SVC</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of ATM Sig VC	<p>The number of configured ATM signaling VCs on the path.</p> <p>Note The <i>Number of ATM Sig VC</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of FR ports	<p>The number of configured Frame Relay ports on the path.</p> <p>Note The <i>Number of FR ports</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of FR Connections	<p>The number of configured Frame Relay Connections on the path.</p> <p>Note The <i>Number of FR Connections</i> is not displayed for VT 1.5/VC 11 or VT 2/VC 12 paths.</p>
Number of IMA links	<p>The number of IMA links configured on the path.</p>
Number of MFR links	<p>The number of Multilink Frame Relay links configured on the path.</p>
XMT. Trace	<p>Indicates the trail trace bytes transmitted on this path.</p> <p>Note A value is displayed for the <i>XMT. Trace</i> parameter only if you entered the cnfpath -txtrace command to transmit trace bytes on this path.</p> <p>Note The <i>XMT. Trace</i> is displayed for STS and E3 paths only.</p>

Information	Description
Loopback	<p>Indicates whether the line is in loopback mode or not:</p> <ul style="list-style-type: none"> • loopbackMode • NoLoop <p>Note The <i>Loopback</i> is displayed for DS3, E3, DS1, and E1 paths only.</p>
Xmt. Clock source	<p>The configured clock source.</p> <ul style="list-style-type: none"> • localClk • loopback <p>Note The <i>Xmt. Clock Source</i> is displayed for DS3, E3, DS1, and E1 paths only.</p>
Path Service	<p>Indicates the type of service configured for the specified path.</p> <p>Note The <i>Path Service</i> is displayed for DS3, E3, DS1, and E1 paths only.</p>
Send Code	<p>Indicates the type of send code configured for the specified path.</p> <p>Note The <i>Path Service</i> is displayed for DS3 and DS1 paths only.</p>
DS0 inuse Bitmap	<p>Displays the DS0 inuse bitmap for the current path.</p> <p>Note The <i>DS0 inuse Bitmap</i> is displayed only for DS1 and E1 paths.</p>
E3 Line Type	<p>Indicates the type of E3 line configured for the path. The possible values for this parameter are:</p> <ul style="list-style-type: none"> • e3g832frmronly • e3g751frmronly <p>Note The <i>E3 Line Type</i> is displayed for E3 paths only.</p>
DS3 Line Type	<p>Indicates the type of DS3 line configured for the path. The possible values for this parameter are:</p> <ul style="list-style-type: none"> • ds3cbitadm • ds3cbitplep • dsx3M23 • dsx3CbitParity <p>Note The <i>DS3 Line Type</i> is displayed for DS3 paths only.</p>
DS1 Line Type	<p>Indicates the type of DS1 line configured for the path. Possible DS1 line types are:</p> <ul style="list-style-type: none"> • dsx1ESF • dsx1SF <p>Note The <i>DS1 Line Type</i> is displayed for DS1 paths only.</p>
E1 Line Type	<p>Indicates the type of E1 line configured for the path. The possible values for this parameter are:</p> <ul style="list-style-type: none"> • dsx1E1 • dsx1E1CRC • dsx1E1MF • dsx1E1CRCMF <p>Note The <i>E1 Line Type</i> is displayed for E1 paths only.</p>

Information	Description
Rcv FEAC Validation	<p>FEAC (far-end alarm and control) code validation criteria.</p> <p>The possible values for <i>LineRcvFEACValidation</i> are:</p> <ul style="list-style-type: none"> • 1 = 4 out of 5: a valid FEAC code is declared if 4 of 5 codes match. • 2 = 8 out of 10: a valid FEAC code is declared when 8 of 10 codes match. <p>Note The <i>Rcv FEAC Validation</i> is displayed for DS3 paths only.</p>
OOF Criteria	<p>Displays the threshold for triggering an out-of-frame condition.</p> <p>The possible values for this parameter are:</p> <ul style="list-style-type: none"> • 1 = 3 out of 8. An out-of-frame condition is declared if at least 3 out of 8 framing bits are in error. • 2 = 3 out of 16. An out-of-frame condition is declared if at least 3 out of 16 framing bits are in error. <p>Note The <i>OOF Criteria</i> is displayed for DS3 paths only.</p>
ASIC c-Bits Check	<p>Indicates the status of the Application-specific Integrated Circuit (ASIC) c-Bits check.</p> <p>Note The <i>ASIC c-Bits Check</i> is displayed for DS3 paths only.</p>
Channelized	<p>Indicates whether the line is channelized (Enabled) or unchannelized (Disabled).</p> <p>Note The status of the <i>Channelized</i> parameter is displayed for DS3 paths only.</p>

Syntax

```
dsppath[-path_filter] <path_num>
```

Syntax Description

-path_filter	<p>Identifies the path type you want to display.</p> <p>Possible path_filter keywords are:</p> <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the dsppath command without the -path_filter option, and only STS/STM paths are configured on the card, the display shows the STS/STM path with the specified path number. If there are DS3 paths configured, and you do not include the -path_filter option with the dsppath command, the display shows the lowest level path (the DS3 path) with the specified path number. To avoid confusion, Cisco recommends that you specify a -path_filter when you display a path.</p>
path_num	<p>The number of the path to display.</p> <p>Note Enter the dsppaths <path_filter> command to display the path numbers for available paths.</p>

Related Commands

dsppaths

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (STS Path)

In the following example, the user displays configuration and state information for the STS path 1.1.0. The optional keyword (-sts) for path type is not necessary because the path number is unique.

```
M8850_SF.9.MPSM155 [ATM] .a > dsppath -sts 1.1.0
Path Number      : 1.1.0          Path Type      : sts
Payload          : vtStructured   Width          : 3
Admin Status     : Up            Alarm Status    : Minor
Operational State : Up           Number of ATM ports : 1
                                           Number of ATM partitions : 1
                                           Number of ATM SPVC : 0
                                           Number of ATM SPVP : 0
                                           Number of ATM SVC : 0
                                           Number of ATM Sig VC : 0
                                           Number of FR ports : 1
                                           Number of FR connections : 1
                                           Number of IMA Links : 1
                                           Number of MFR Links : 1

Xmt. Trace      :
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```

Example (DS3 Path)

In the following example, the user displays configuration and state information for the DS3 path 1.1.0:2.

```
M8850_SF.9.MPSM155 [ATM] .a > dsppath -ds3 1.1.0:2
Path Number      : 1.1.0:2      Path Type      : ds3
Admin Status     : Up            Alarm Status    : Clear
Operational State : lowLayerDn   Number of ATM ports : 0
DS3 Line Type    : dsx3CbitParity Number of ATM partitions : 0
OOFCriteria      : 3Of16Bits     Number of ATM SPVC : 0
AIS c-Bits Check : Check         Number of ATM SPVP : 0
Loopback         : NoLoop        Number of ATM SVC : 0
Xmt. Clock Source : localTiming   Number of ATM Sig VC : 0
Rcv FEAC Validation : 4 out of 5  Number of FR ports : 0
Path Service     : unspecified    Number of FR connections : 0
Send Code        : No            Number of IMA Links : 0
Channelized      : Disabled       Number of MFR Links : 0
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```

Example (E3 Path)

In the following example, the user displays configuration and state information for the E3 path 1.1.0:3.

```
M8850_SF.9.MPSM155 [ATM] .a > dsppath -e3 1.1.0:3
Path Number      : 1.1.0:3      Path Type      : ds3
Admin Status     : Down         Alarm Status    : Unknown
Operational State : Down        Number of ATM ports : 0
E3 Line Type     : e3g832frmronly Number of ATM partitions : 0
Loopback         : NoLoop       Number of ATM SPVC : 0
Xmt. Clock Source : localTiming   Number of ATM SPVP : 0
Path Service     : invalid       Number of ATM SVC : 0
                                           Number of ATM Sig VC : 0
                                           Number of FR ports : 0
                                           Number of FR connections : 0
                                           Number of IMA Links : 0
                                           Number of MFR Links : 0

Xmt. Trace      :
NOTE: Number of ATM ports/parts/conns excludes those on IMA groups
      Number of FR ports/conns excludes those on MFR bundles
```

Example (DS1 Path)

In the following example, the user displays configuration and state information for the DS1 path 1.1.0:1.1.1.

```
M8850_SF.9.MPSM155 [ATM] .a > dsppath -ds1 1.1.0:1.1.1
Path Number      : 1.1.0:1.1.1      Path Type      : ds1
Admin Status     : Up                Alarm Status    : Clear
Operational State : Up                Number of ATM ports : 0
DS1 Line Type    : dsx1ESF           Number of ATM partitions : 0
Loopback         : NoLoop            Number of ATM SPVC   : 0
Xmt. Clock Source : localTiming      Number of ATM SPVP   : 0
Path Service     : hdlc              Number of ATM SVC    : 0
Send Code        : No                Number of ATM Sig VC : 0
DS0 inuse Bitmap : 0xFFFFFFFF       Number of FR ports   : 1
                                                         Number of FR connections : 1
                                                         Number of IMA Links    : 0
                                                         Number of MFR Links    : 0
```

Example (E1 Path)

In the following example, the user displays configuration and state information for the E1 path 1.1.0:3.7.3.

```
M8850_SF.9.MPSM155 [ATM] .a > dsppath -e1 1.1.0:3.7.3
Path Number      : 1.1.0:3.7.3      Path Type      : ds1
Admin Status     : Up                Alarm Status    : Clear
Operational State : Up                Number of ATM ports : 0
E1 Line Type     : dsx1E1CRCMF      Number of ATM partitions : 0
Loopback         : NoLoop            Number of ATM SPVC   : 0
Xmt. Clock Source : localTiming      Number of ATM SPVP   : 0
Path Service     : ima              Number of ATM SVC    : 0
                                                         Number of ATM Sig VC   : 0
DS0 inuse Bitmap : 0xffffefffe      Number of FR ports   : 0
                                                         Number of FR connections : 0
                                                         Number of IMA Links    : 1
                                                         Number of MFR Links    : 0
```

Example (VT 1.5 Path)

In the following example, the user displays configuration and state information for the VT 1.5 path 1.1.2:5.3.

```
mpsm_node1.5.MPSM155 [ATM] .a > dsppath -vt 1.1.2:5.3
Path Number      : 1.1.2:5.3      Path Type      : vt
Payload          : Up                Width          : 1-vt15
Alarm Status     : Clear
Operational State : Up
```

Example (VT 2 Path)

In the following example, the user displays configuration and state information for the VT 2 path 1.1.3:3.3.

```
mpsm_node1.5.MPSM155 [ATM] .a > dsppath -vt 1.1.3:3.3
Path Number      : 1.1.3:3.3      Path Type      : vt
Payload          : Down            Width          : 2-vt2
Alarm Status     : Unknown
Operational State : Down
```

dsppathalm

Display Path Alarm

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppathalm** command to display the following alarm information for the specified path .

Path Number	Identifies the path whose alarm you are displaying.
Path Type	Indicates the path type of the specified path. Possible path types are sts, vt, ds3, or ds1.
Path Alarm State	Indicates the current path alarm status for the specified path.
Path Operational State	Indicates whether the operational state of the path is up or down.
Path LOCD Alarm State	Indicates the current LOCD alarm status for the specified path.

Syntax

dsppathalm [*pathFilter*] <*path_num*>

Syntax Description

-path_filter	Identifies the path type for which you want alarm information. Possible <i>path_filter</i> keywords are: <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the dsppathalm command without the -path_filter option, and only STS/STM paths are configured on the card, the display shows the path alarms for the STS/STM path with the specified path number. If there are DS3 paths configured on the card as well as STS/STM paths, and you do not include the -path_filter option with the dsppathalm command, the path alarms will be displayed for the lowest level path (the DS3 path). To avoid confusion, Cisco recommends that you specify a -path_filter when you display a path.</p>
<i>path_num</i>	The number of the path to display. Note Use the dsppaths < <i>path_filter</i> > command to display the path numbers for available paths.

Related Commands

dsppathalms

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays information about path alarms on the STS line 1.1.1

```
mpsm_node.4.MPSM155 [ATM] .a > dsppathalm -sts 1.1.1
  Path Number : 1.1.1
  Path Type   : sts
  Path Operational State : Up
  Path Alarm State : Clear
  Path LOCD Alarm state : Clear
  Path Statistical Alarm State: Clear
```

dsppathalmcnf

Display Path Alarm Configuration

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppathalmcnf** command to display the alarm thresholds for the statistical counters for the specified path.

Syntax

dsppathalmcnf [*path_filter*] <*path_num*>

Syntax Description

<i>-path_filter</i>	Identifies the path type for which you want alarm configuration information. Possible <i>path_filter</i> keywords are: <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths may share the same path number. On a card configured with only STS/STM paths, entering the dsppathalmcnf command without the <i>-path_filter</i> option displays the statistical path alarm thresholds for the configured STS/STM path. However, on a card configured with STS/STM paths and DS3 paths, entering the dsppathalmcnf command without the <i>-path_filter</i> option displays the lowest-level configured path (the DS3 path). To avoid confusion, specify a <i>-path_filter</i> when using the dsppathalmcnf command.</p>
<i>path_num</i>	The number of the path to display. Note Use the dsppaths < <i>path_filter</i> > command to display the path numbers for available paths.

Related Commands

cnfpathalm

Attributes

Log: no

State: active, standby, init

Privilege: ANYUSER

Example

In the following example, the user displays the configured threshold settings for the statistical alarm counters on the STS path 1.1.1.

```
mpsm_node.4.MPSM155 [ATM] .a > dsppathalmcnf -sts 1.1.1
PathNum: 1.1.1
  PathType: sts
  Path Stat Alarm Severity: None
    15min Threshold    24hr Threshold
Path ESs :      20          200
Path SESs:      3           7
Path CVs :      25         250
Path UASs:      10          10
```

dsppathalmcnt

Display Path Alarm Counters

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppathalmcnt** command to display the path alarm counters for the specified path for the current 15-minute interval and the current 24-hour interval. Optionally, you can display path alarm counters for a specific 15-minute interval only.

Syntax

dsppathalmcnt [*path_filter*] <*path_num*> [<*intvl*>]

Syntax Description

<i>-path_filter</i>	<p>Identifies the path type for which you want to display alarm counters.</p> <p>Possible <i>path_filter</i> keywords are:</p> <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the dsppathalmcnt command without the <i>-path_filter</i> option, and only STS/STM paths are configured on the card, the display shows the path alarm counters for the STS/STM path with the specified path number. If there are DS3 paths configured on the card as well as STS/STM paths, and you do not include the <i>-path_filter</i> option with the dsppathalmcnt command, the display shows the path alarm counters for the lowest-level path (the DS3 path). To avoid confusion, Cisco recommends that you specify a <i>-path_filter</i> when you display a path.</p>
<i>path_num</i>	<p>The number of the path to display.</p> <p>Note Use the dsppaths <<i>path_filter</i>> command to display the path numbers for available paths.</p>
<i>intvl</i>	<p>The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.</p>

Related Commands

clrpathalmcnt

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the path alarm counters for the STS path 1.1.0, which displays current and 24-hour statistics.

```
M8850_SF.9.MPSM155 [FR] .a > dsppathalmcnt -sts 1.1.0
Path Number      : 1.1.0
Path Type        : sts
Path PM:
-----
Num of AISs: 0
Num of RDIs: 0
Near End                Far End
CurrentESSs      : 0      CurrentESSs      : 0
CurrentSESSs     : 0      CurrentSESSs     : 0
CurrentCVs       : 0      CurrentCVs       : 0
CurrentUASS      : 0      CurrentUASS      : 0
Current24HrESSs  : 0      Current24HrESSs : 0
Current24HrSESSs: 0      Current24HrSESSs: 0
Current24HrCVs   : 0      Current24HrCVs   : 0
Current24HrUASSs: 0      Current24HrUASSs: 0
```

In the following example, the user displays interval statistics for the same path.

```
M8850_SF.9.MPSM155 [FR] .a > dsppathalmcnt -sts 1.1.0 2
Path Type        : sts
Path Number      : 1.1.0
Interval Number  : 2
Path PM:
-----
Near End                Far End
ESSs      : 0      ESSs      : 0
SESSs     : 0      SESSs     : 0
CVs       : 0      CVs       : 0
UASSs     : 0      UASSs     : 0
```

dsppathalms

Display Path Alarms

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppathalms** command to display the following alarm information.

Path Number	Identifies the path whose alarms you are displaying.
Path Type	Indicates the path type of the specified path. Possible path types are sts, vt, ds3, or ds1.
Path Operational State	Indicates whether the operational state of the path is up or down.
Path Alarm State	Indicates the current alarm status the specified paths.
Path LOCD Alarm State	Indicates the current LOCD alarm status for the specified path.
Path Statistical Alarm State	Indicates the current statistical alarm status for the specified path.

Syntax

dsppathalms <path_filter>

Syntax Description

<i>path_filter</i>	Identifies the path type, so only that path type will be displayed. The possible path types are: <ul style="list-style-type: none"> • -sts—Display STS paths in SONET networks, or AU paths in SDH networks. • -vt—Display VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Display DS3 paths in SONET and SDH networks. • -e3—Display E3 paths in SONET and SDH networks. • -ds1—Display DS1 paths in SONET and SDH networks. • -all—Display all paths .
--------------------	---

Related Commands

dsppathalm

Attributes

Log: no

State: active, standby, init

Privilege: ANYUSER

Example

In the following example, the user displays the path alarms for all configured paths.



Note

In this example, only STS paths have been configured for the card; no VT (Sonet), DS3, or DS1 paths have been configured.

```
mpsm_node.4.MPSM155[ATM].a > dsppathalms -all
Path Number : 1.1.1
Path Type   : sts
Path Operational State : Up
Path Alarm State : Clear
Path LOCD Alarm State : Clear
Path Statistical Alarm State: Clear
Path Number : 1.1.2
Path Type   : sts
Path Operational State : Up
Path Alarm State : Clear
Path LOCD Alarm State : Clear
Path Statistical Alarm State: Clear
Path Number : 1.1.3
Path Type   : sts
Path Operational State : Down
Path Alarm State : Clear
Path LOCD Alarm State : Clear
Path Statistical Alarm State: Clear
Shelf Database table empty.DspSonetVTAlmsTable
Shelf Database table empty.DspDs3PathAlmsTable
Shelf Database table empty.ds1Alarm.ds1AlarmTables
```

In the following example, STS and DS3 path types have been configured for the card.

```
mpsm_node1.11.MPSM155[FR].a > dsppaths -all
```

Path	Path Type	Admin Status	Path Payload	Path Width	Alarm Status	Oper State
1.1.1	sts	Up	ds3	1	Clear	Up
1.1.2	sts	Up	e3	1	Clear	Up
1.1.3	sts	Down	unequipped	1	Unknown	Down

Shelf Database table empty.SonetVTsTable

Path	Path Type	Admin Status	DS3 Type	Path Lpbk	Alarm Status	Oper State	Path Service
1.1.1	ds3	Up	dsx3CbitParity	NoLoop	Clear		Up unspecified
1.1.2	ds3	Up	e3g832frmronly	Local	Clear		Up unspecified

Shelf Database table empty.Ds1PathsTable

In the following example, the user displays the path alarms for all STS paths.

**Note**

In this example, path information is displayed only for STS paths.

```
mposm_node.5.MPSM155[FR].a > dsppathalms -sts
  Path Number : 1.1.1
  Path Type   : sts
  Path Operational State : Up
  Path Alarm State : Clear
  Path LOCD Alarm State : Clear
  Path Statistical Alarm State: Clear
Path Number : 1.1.2
  Path Type   : sts
  Path Operational State : Up
  Path Alarm State : Clear
  Path LOCD Alarm State : Clear
  Path Statistical Alarm State: Clear
Path Number : 1.1.3
  Path Type   : sts
  Path Operational State : Up
  Path Alarm State : Clear
  Path LOCD Alarm State : Clear
  Path Statistical Alarm State: Clear
```

dsppaths

Display Paths

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsppaths** command to display the following information for paths.

Path Number	Identifies the path.
Path Type	Indicates the path type of the specified path. Possible path types are sts, vt, ds3, or ds1.
Payload	Indicates the payload type for the specified path. For example, ds3. Possible path payloads are: <ul style="list-style-type: none"> • ds3 • vt15vc11 • vt2vc12 • e3 • vtStructured
Admin Status	Indicates whether the administrative state of the path is up or down.
Path Width	Indicates the width of the specified path. The possible values for this parameter are: <ul style="list-style-type: none"> • 1 = sts1_stm0 • 3 = sts3c_stm1 <p>Note The <i>Path Width</i> is displayed only for STS, VT 1.5/VC 11, VT 2/VC 12, and VT-structured paths.</p>
Alarm Status	Indicates the current alarm status of the path: <ul style="list-style-type: none"> • critical • major • minor • clear • unknown • N/A <p>Note The alarm status for standby cards is reported as N/A because the alarm status of the standby card may not be the same as the active card.</p>
Oper State	Indicates whether the operational state of the path is up or down.

Syntax

dsppaths <path_filter>

Syntax Description

<i>path_filter</i>	Optional keyword that identifies the path type, so only that path type will be displayed. The possible path types are: <ul style="list-style-type: none"> • -sts—Display STS paths in SONET networks, or AU paths in SDH networks. • -vt—Display VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Display DS3 paths in SONET and SDH networks. • -e3—Display E3 paths in SONET and SDH networks. • -ds1—Display DS1 paths in SONET and SDH networks. • -all—Display all paths .
--------------------	---

Note Enter the **dsppaths -all** command to display all paths.

Related Commands

dsppath

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays all paths configured. In this example, only STS paths have been configured for the card; no VT (Sonet), DS3, or DS1 paths have been configured.

```
mpsm_node.4.MPSM155 [ATM] .a > dsppaths -all
```

Path	Path Type	Admin Status	Path Payload	Path Width	Alarm Status	Oper State
1.1.1	sts	Up	hdlcFr	1	Clear	Up
1.1.2	sts	Up	atm	1	Clear	Up
1.1.3	sts	Down	unequipped	1	Unknown	Down
Shelf Database table empty.SonetVTsTable						
Shelf Database table empty.Ds3PathsTable						
Shelf Database table empty.Ds1PathsTable						

In the following example, the user displays all STS paths configured.

```
mpsm_node.4.MPSM155 [ATM] .a > dsppaths -sts
```

Path	Path Type	Admin Status	Path Payload	Path Width	Alarm Status	Oper State
1.1.1	sts	Up	hdlcFr	1	Clear	Up
1.1.2	sts	Up	atm	1	Clear	Up
1.1.3	sts	Down	unequipped	1	Unknown	Down

dspport

Display Port

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspport** command to display the configuration for a logical port. In the ATM CLI context, the ports represent ATM services or IMA groups. In the Frame Relay CLI context, the ports represent Frame Relay services, Multilink Frame Relay bundles, or Multilink PPP bundles.

The following qualifications apply to port displays:

- The operational state for standby cards is reported as N/A because the operational state of the standby card may not be the same as the active card.
- The total number of connections in the display includes control VCs. The types of control VCs are SSCOP, PNNI-RCC, and ILMI (if ILMI is enabled on the MPSM cards). To see the connection counts that do not include control VCs, use **dsppnport**.
- When a MPSM rebuilds, it provisions the card from the stored database on the PXM disk. If the SCT file associated with a specific port is missing or corrupted, the default SCT file is applied to that port. This is indicated in the **dspport** output by the string:
“0/0 =Def”
- The SCT ID in the display pertains to the port. For the card-level SCT ID, use **dspscd** on the current card.

Syntax

dspport <*ifNum*>

Syntax Description

<i>ifNum</i>	Identifies the logical interface (port number) to display.
Note	Use the dspports command in the to display the port numbers for all active ports in the current CLI context.

Related Commands

addport, dnport, dspports

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the port configuration for ATM port 12.

```
mppsm_node.4.MPSM155[ATM].a > dspport 12
Interface Number           : 12
Line/Path Number          : 1.1.2      IMA Group Number       : N/A
Admin State                : Up         Operational State      : Up
Guaranteed bandwidth(cells/sec): 50    Number of partitions   : 1
Maximum bandwidth(cells/sec): 50      Number of SPVC        : 1
ifType                     : UNI       Number of SPVP        : 0
VPI number (VNNI, VUNI)    : 0      Number of SVC         : 0
                           :          Number of Sig VC      : 0
MIN VPI (EVNNI, EVUNI)    : 0         MAX VPI (EVNNI, EVUNI): 0
SCT Id                     : 0 =Def
F4 to F5 Conversion       : Disabled
```

In the following example, the user displays the port configuration for IMA port 127.

```
M8850_SF.9.MPSM155[ATM].a > dspport 127
Interface Number           : 127
Line/Path Number          : N/A      IMA Group Number       : 1
Admin State                : Up         Operational State      : Up
Guaranteed bandwidth(cells/sec): 3000  Number of partitions   : 1
Maximum bandwidth(cells/sec): 3000    Number of SPVC        : 0
ifType                     : UNI       Number of SPVP        : 0
VPI number (VNNI, VUNI)    : 0      Number of SVC         : 0
                           :          Number of Sig VC      : 0
MIN VPI (EVNNI, EVUNI)    : 0         MAX VPI (EVNNI, EVUNI): 0
SCT Id                     : 0 =Def
F4 to F5 Conversion       : Disabled
```

Example (Frame Relay Service Context)

In the following example, the user displays the port configuration for Frame Relay port 2.

```
mppsm_node.5.MPSM155[FR].a > dspport 2
Interface Number           : 2
Line Number                : 1.1.1
DS0 Speed                  : unused
DS0 Configuration Bit Map : N/A
Admin State                : Down
Operational State         : Down
Port State                 : Inactive
Port Signaling State      : No Signaling Failure
Interface Type             : Frame Relay
SCT Id                     : 0/0 =Def
Frame Header Length       : Two Bytes
Flags Between Frames      : 1
Equeue Service Ratio      : 1
Port Speed                 : 44209 kbps
Checksum type              : crc16
Over-subscription         : Disabled
Over-subscribed           : False
Signaling Protocol Type   : No Signaling
Enhanced LMI               : Disabled
FRF 1.2 Support           : Disabled
Asynchronous Updates      : Disabled
T391 Link Integrity Timer : 10 secs
```

Type <CR> to continue, Q<CR> to stop:

```
T392 Polling Verification Timer : 15 secs
N391 Full Status Polling Counter : 6
```

```

N392 Error Threshold           : 3
N393 Monitored Event Count    : 4
FRF.12 Fragmentation          : Disabled
FRF.12 Fragment Size          : 64 Bytes
Port HDLC Frame Inversion      : Disabled
Number of Partitions           : 1
Number of SPVC                 : 0

```

In the following example, the user displays the port configuration for Multilink Frame Relay port 4.

```

M8850_SF.9.MPSM155[FR].a > dspport 4
Interface Number               : 4
Line Number                    : N/A
MFR bundle Number              : 1
DS0 Speed                      : unused
DS0 Configuration Bit Map      : N/A
Admin State                    : Up
Operational State              : Up
Port State                     : Active
Port Signaling State           : No Signaling Failure
Interface Type                  : Frame Relay
SCT Id                         : 0/0 =Def
Frame Header Length            : Two Bytes
Flags Between Frames           : 1
Equeue Service Ratio           : 1
Port Speed                     : 1532 kbps
Checksum type                  : crc16
Over-subscription              : Disabled
Signaling Protocol Type        : None
Enhanced LMI                   : Disabled
FRF 1.2 Support                : Disabled
Asynchronous Updates           : Disabled
T391 Link Integrity Timer      : 10 secs

```

Type <CR> to continue, Q<CR> to stop:

```

T392 Polling Verification Timer : 15 secs
N391 Full Status Polling Counter : 6
N392 Error Threshold           : 3
N393 Monitored Event Count    : 4
FRF.12 Fragmentation          : Disabled
FRF.12 Fragment Size          : 64 Bytes
Port HDLC Frame Inversion      : Disabled
Number of Partitions           : 1
Number of SPVC                 : 0

```

Example (PPP Service Context)

In the following example, the user displays the port configuration for Multilink PPP port 5.

```

M8850_SF.25.MPSM16T1E1PPP[FR].a > dspport 5
Interface Number               : 5
Line Number                    : N/A
DS0 Speed                      : unused
DS0 Configuration Bit Map      : N/A
Admin State                    : Up
Operational State              : Up
Port State                     : Active
Port Signaling State           : No Signaling Failure
Interface Type                  : Frame Forward
SCT Id                         : 0/0 =Def
Frame Header Length            : Two Bytes
Flags Between Frames           : 1
Equeue Service Ratio           : 1
Port Speed                     : 1536 kbps

```

```
Checksum type                : crc16
Over-subscription            : Disabled
Signaling Protocol Type     : None
Enhanced LMI                 : Disabled
FRF 1.2 Support              : Disabled
Asynchronous Updates        : Disabled
T391 Link Integrity Timer    : 10 secs
T392 Polling Verification Timer : 15 secs
```

Type <CR> to continue, Q<CR> to stop:

```
N391 Full Status Polling Counter : 6
N392 Error Threshold              : 3
N393 Monitored Event Count       : 4
FRF.12 Fragmentation             : N/A
FRF.12 Fragment Size             : 64 Bytes
Port HDLC Frame Inversion        : Disabled
Number of Partitions             : 1
Number of SPVC                   : 0
```

dspportcnt

Display Port Counters

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspportcnt** command to display statistics counters for a logical port. In the ATM CLI context, the ports represent ATM services or IMA groups. In the Frame Relay CLI context, the ports represent Frame Relay services or Multilink Frame Relay bundles.

Syntax (ATM Service Context)

```
dspportcnt <ifNum> <intvl>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Identifies the logical interface (port number) whose counters you want to display. Note Use the dspports command in the ATM CLI context to display the port numbers for all ATM ports.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Syntax (Frame Relay Service Context)

```
dspportcnt <ifNum>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Identifies the logical interface (port number) whose counters you want to display. Note Use the dspports command in the Frame Relay CLI context to display the port numbers for all Frame Relay ports.
--------------	---

Related Commands

dspports, **dspport**, **cnfport**, **dspcds**

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the port counters on logical port (*ifNum*) 12. In this example, the user displays the counters from the most recent 15-minute interval.

```
mpsm_node.4.MPSM155 [ATM] .a > dspportcnt 12 1
Interface Num      : 12
Interval Num      : 1
                   Ingress          Egress
Arrival Clp0 Cells : 0              0
Arrival Clp1 Cells : 0              0
Arrival Clp0 Disc Cells : 0          0
Arrival Clp1 Disc Cells : 0          0
Depart. Clp0 Cells  : 0              0
Depart. Clp1 Cells  : 0              0
```

Example (Frame Relay Service Context)

In the following example, the user displays port counters on logical port (*ifNum*) 1.

```
mpsm_nod1.4.MPSM155 [FR] .a > dspportcnt 1
Interface Num      : 1
      Ingress Port stats:
-----
Rcv Frames          : 1
Rcv Bytes          : 18446744071563566368
Rcv Frames FECN    : 67223683
Rcv Frames BECN    : 0
Rcv Frames DE      : 18446744071598156968
Rcv Kbps AIR       : 4294967295
Rcv Frame Discard CRC Err : 2982979259436
Rcv Frame Discard Align Err : 872480513
Rcv Frame Discard Illegal Len : 2271942112
Rcv Frame Discard Illegal Hdr : 18446744071685131840
Rcv Frame Abort    : 18446744071686542312
Rcv Frame Unknown DLCI : 18446744071598157068
Rcv Frame Last Unknown DLCI : 2183572728
Rcv Frame Tagged FECN : 18446744071598157064
Rcv Frame Tagged BECN : 18446744071598157056
Rcv Frame Tagged DE : 65590
Rcv Frame Discard Exceed DE Threshold : 18446744071687405288
Rcv Frame Discard No Channel : 18446744071563550344
Rcv Frame Buffer Unavailable : 19356317216

Type <CR> to continue, Q<CR> to stop:
Rcv Bytes Discard Exceed DThreshold : 18446744071563654100
      Egress Port stats:
-----
Xmt Frames          : 18446744071687297576
Xmt Bytes          : 18446744071563550344
Xmt Frames FECN    : 0
Xmt Frames BECN    : 0
Xmt Frames Aborted : 18446744071686540332
Xmt Kbps AIR       : 2149069780
Xmt Frames LMI Alarm : 0
Xmt Frames Discard Exceed Q Depth : 18446744071563654044
Xmt Frames Discard Exceed DThreshold : 65702
Xmt Bytes LMI Alarm : 872480513
Xmt Bytes Discard Exceed Q Depth : 18446744073709551615
Xmt Bytes Discard Exceed DThreshold : 18446744071598157064
      LMI Port stats:
-----
Rcv LMI Status Inquiry : 0
```

```
Rcv LMI Status : 4294967295
Rcv LMI Asynch Update : 4294967295
Xmt LMI Status Inquiry : 872480513
Xmt LMI Status : 1
```

Type <CR> to continue, Q<CR> to stop:

```
Xmt LMI Asynch Update : 4
Rcv LMI Invalid Request : 65573
Rcv LMI UNI Seq Mismatch : 2148966024
Rcv LMI NNI Seq Mismatch : 2149069780
LMI UNI Signaling tmout : 2155073768
LMI NNI Signaling tmout : 2149069724
```

dspportload

Display Port Load

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspportload** command to display the current number of ingress and egress cells per second on a logical port (*ifNum*). This command can help you determine the current state of a port. Using the parameters displayed by **dspeon**, you can see if the current load on the port needs modification or troubleshooting.

Syntax

dspportload <*ifNum*>

Syntax Description

<i>ifNum</i>	Identifies the logical interface (port) whose ingress and egress cell loads you want to display.
--------------	--

Note Use the **dsports** command in the ATM CLI context to display the port numbers for all ATM ports.

Related Commands

dsports, dspport, cnfport

Attributes

Log: no	State: active, standby	Privilege: ANYUSER
---------	------------------------	--------------------

Example

In the following example, the user displays the load on logical port 12. In this case, no traffic currently exists on the connection.

```
mpsm_node.4.MPSM155[ATM].a > dspportload 12
Getting the stats. Please wait ...
Cell rate (cps)           Ingress           Egress
                        : 0                0
```


dspports

Display Ports

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspports** command to display general information about all logical ports on the card.

Enter the **dspports** command in the ATM CLI context to display the following information for all ATM ports on the current card:

ifNum	Identifies the logical interface (port).
Line/Path	Identifies the path number associated with the port.
Admin State	Indicates whether the administrative status of the port is up or down.
Oper State	Indicates whether the port is up or down.
Guaranteed Rate	Indicates the minimum guaranteed rate for the port in cells per second.
Maximum Rate	Indicates the maximum allowed rate for the port in cells per second.
sctID Cnf/InUse	Indicates the ID of the port-level SCT (see the addport command).
ifType	Indicates the type of interface configured on the port.
VPI (VNNI, VUNI)	The VPI number of the port (applies only where virtual NNIs are available).
MINVPI (EVUNI, EVNNI)	The minimum VPI configured for the port (applies only where virtual NNIs are available).
MAXVPI (EVUNI, EVNNI)	The maximum VPI configured for the port (applies only where virtual NNIs are available).
IMA GRP	Identifies the port's IMA group, if IMA groups are configured. Note If the specified port is not configured for an IMA group, the IMA GRP field reports <i>N/A</i> .

Enter the **dspports** command in the Frame Relay CLI context to display the following information for all Frame Relay ports:

ifNum	Identifies the logical interface (port).
Line/Path	Indicates the line or path number associated with the port.
Admin State	Indicates whether the administrative status of the port is up or down.
Oper State	Indicates whether the port is up or down.
ifType	Indicates the type of interface configured on the port.
sctID Conf./InUse	Indicates the ID of the port-level SCT (see the addport command).
DS0 Start	Indicates the first DS0 channel in an NxDS0 port.
Port Speed	Indicates the data rate of the port, in kbps.
ESR	Indicates the enqueue service ratio
Signaling Type	Indicates the port signaling type, if any.
ELMI Status	Indicates wheter enhanced LMI state is enabled or disabled on the port.

FRF 12 Fragmentation	Indicates whether FRF 12 Fragmentation is enabled or disabled on the port.
MLPPP Bundle	Indicates the bundle with which the port is associated for MLPPP services. Note Displayed only on cards that support MLPPP.
MFR Bundle	Indicates the bundle with which the port is associated for MFR services. Note Displayed only on cards that support MFR.

**Note**

The operational state for standby cards is reported as N/A because the operational state of the standby card may not be the same as the active card.

Syntax

dsports

Related Commands

addport, cnfport, delpport, dsport

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the ATM ports, one of which is in an IMA group.

```
M8850_SF.9.MPSM155[ATM].a > dsports
ifNum   Line/   Admin  Oper   Guaranteed Maximum   sctID   ifType  VPI  MINVPI  MAXVPI  IMA
        Path   State  State  Rate     Rate    Cnf/InUse  (VUNI) (EVUNI, (EVUNI,  GRP
                               (VUNI)  EVNUNI) EVNUNI)
-----
 127     N/A     Up     Up     3000    3000    0/ 0 =Def  UNI     0       0       0     1
 128  1.1.0:1.7.4  Up     Up     3000    3000    0/ 0 =Def  UNI     0       0       0    N/A
```

Example (Frame Relay Service Context)

In the following example, the user displays the Frame Relay ports, one of which is in a MFR bundle.

```
M8850_SF.9.MPSM155[FR].a > dsports
ESR: Egress queue Service Ratio

If   Line/Path  Admn Oper if  In  Start  Port  Signaling  E  FRF
Num Num      Stat Stat Type Use (Num)  kbps  ESR Type  St  LMI 12  MFR
-----
 4     N/A     Up  Up  FR  0   N/A   1532  1     None Off Off  1
11  1.1.0:1.1.1  Up  Up  FR  0  1(24) 1536  1     None Off Off N/A
```

Example (PPP Context)

In the following example, the user displays the ports for MLPPP bundles.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dspports
ESR: Egress queue Service Ratio
```

If Num	Line/Path Num	Admn Stat	Oper Stat	if Type	SCT Use	DS0 (Num)	Port Speed kbps	ESR	Signaling Type	E LMI St	FRF Frq	MLPPP Bundle
5	N/A	Up	Up	FFwd	0	N/A	1536	1	None	Off	N/A	5
13	N/A	Up	Up	FFwd	0	N/A	1536	1	None	Off	N/A	13

dsportsct

Display Port SCT

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsportsct** command to display the contents of the service class template (SCT) on a port. See the description of the **addport** command for information on SCTs.



Note

Currently, the system does not support certain parameters in the SCT, so you can specify them through **addcon**, **cnfcon**, or Cisco WAN Manager. These parameters are (when applicable) PCR, SCR, and ICR.

Syntax (ATM Service Context)

```
dsportsct {gen | cosThr | vcThr} <ifnum> [-units <units>]
```

Syntax Description (ATM Service Context)

gen vcThr cosThr	An aspect of the SCT to display: <ul style="list-style-type: none"> • gen = policing and CAC • vcThr = ATM VC thresholds • cosThr = class of service buffer (CoSB) thresholds
<i>ifnum</i>	Identifies the logical interface (port) whose SCT contents you want to display. <p>Note Use the dsports command in the ATM CLI context to display the port numbers for all ATM ports.</p>
-units	Optional keyword which specifies the display units, in one of the following formats: <ul style="list-style-type: none"> • time = units in time or 0.0001% of max (default) • cellbyte = units in cells or bytes

Syntax (Frame Relay and PPP Service Context)

```
dsportsct {gen | vcFR | cosThr} <ifnum> [-units <units>]
```

Syntax Description (Frame Relay and PPP Service Context)

gen vcFR cosThr	An aspect of the SCT to display: <ul style="list-style-type: none"> • gen—policing and CAC • vcFR—Frame Relay VC thresholds • cosThr—class of service buffer (CoSB) thresholds
------------------------	--

<i>ifnum</i>	Identifies the logical interface (port) whose SCT contents you want to display. Note Use the dsportsct command in the Frame Relay CLI context to display the port numbers for all ATM ports.
-units	Optional keyword which specifies the display units, in one of the following formats: <ul style="list-style-type: none"> time = units in time or 0.0001% of max (default) cellbyte = units in cells or bytes

Related Commands

addport, cnfport, dsport

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all generic parameters for port 6.

```
mpsm_node.5.MPSM155 [ATM] .a > dsportsct gen 6
+-----+
| Service Class Template [ 1] : General Parameters |
| Major Version [ 1]           : Minor Version [ 0] |
+-----+
| SERV-TYPE (HEX) | COSB_NUM | CAC_TYPE | UPC_ENB |
+-----+
|   ATMF_CBR1(100) |    18   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRrt1(101) |    18   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRrt2(102) |    18   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRrt3(103) |    18   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRnrt1(104) |    19   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRnrt2(105) |    19   |   BCAC  | GCRA 1 & 2 |
|   ATMF_VBRnrt3(106) |    19   |   BCAC  | GCRA 1 & 2 |
|   ATMF_UBR1(107) |    20   | LCN_CAC | GCRA 1 & 2 |
|   ATMF_UBR2(108) |    20   | LCN_CAC | GCRA 1 & 2 |
|   ATMF_ABR(109) |    19   |   BCAC  | GCRA 1 & 2 |
|   ATMF_CBR2(10a) |    18   |   BCAC  | GCRA 1 & 2 |
|   ATMF_CBR3(10b) |    18   |   BCAC  | GCRA 1 & 2 |
+-----+
```

In the following example, the user displays all ATM VC threshold parameters for port 6.

```
mpsm_node1.5.MPSM155 [ATM] .a > dsportsct vcThr 6
+-----+
| Service Class Template [ 1] : VC Threshold Parameters |
| Major Version [ 1]           : Minor Version [ 0] |
+-----+
| SERV TYPE (DEC) | MAX_CELL | EFCI | CLPlo/EPD1 | CLPhi | EPD0 |
|                 | THR(uSec) | (0.0001%) | (0.0001%) | (0.0001%) |
| (0.0001%) |
+-----+
|   ATMF_CBR1( 256) |    5000 | 700000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt1( 257) |   10000 | 700000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt2( 258) |   10000 | 700000 | 400000 | 600000 | 800000 |
|   ATMF_VBRrt3( 259) |   10000 | 700000 | 400000 | 600000 | 800000 |
+-----+
```

```

| ATMF_VBRnrt1( 260) | 50000 | 700000 | 400000 | 600000 | 600000 |
| ATMF_VBRnrt2( 261) | 50000 | 700000 | 400000 | 600000 | 600000 |
| ATMF_VBRnrt3( 262) | 50000 | 700000 | 400000 | 600000 | 600000 |
|   ATMF_UBR1( 263) | 100000 | 700000 | 300000 | 500000 | 700000 |
|   ATMF_UBR2( 264) | 100000 | 700000 | 300000 | 500000 | 700000 |
|   ATMF_ABR( 265) | 70000 | 700000 | 400000 | 600000 | 800000 |
|   ATMF_CBR2( 266) | 5000 | 700000 | 400000 | 600000 | 800000 |
|   ATMF_CBR3( 267) | 5000 | 700000 | 400000 | 600000 | 800000 |
+-----+
|   SERV TYPE(DEC) | PKT DISCARD | ABR_CNG_THR |
Type <CR> to continue, Q<CR> to stop:
|                   | MODE         | (0.0001%)    |
+-----+
|   ATMF_CBR1( 256) | DISABLED | |
|   ATMF_VBRrt1( 257) | DISABLED |
|   ATMF_VBRrt2( 258) | DISABLED |
|   ATMF_VBRrt3( 259) | DISABLED |
|   ATMF_VBRnrt1( 260) | DISABLED |
|   ATMF_VBRnrt2( 261) | DISABLED |
|   ATMF_VBRnrt3( 262) | DISABLED |
|   ATMF_UBR1( 263) | DISABLED |
|   ATMF_UBR2( 264) | DISABLED |
|   ATMF_ABR( 265) | DISABLED | 500000 |
|   ATMF_CBR2( 266) | DISABLED |
|   ATMF_CBR3( 267) | DISABLED |
+-----+

```

In the following example, the user displays all CoSB threshold parameters for port 6 in units of time and percentages.

```

mpsm_node1.5.MPSM155 [ATM] .a > dspportsct cosThr 6 -units time
+-----+
| Service Class Template [ 1] : COSB Threshold Parameters |
| Major Version [ 1]           : Minor Version [ 0]       |
+-----+
| COSB | MAX_THR |
|      | (uSec) |
+-----+
| 17 | 286000 |
| 18 | 296000 |
| 19 | 376000 |
| 20 | 376000 |
+-----+

```

Example (Frame Relay Service Context)

In the following example, the user displays all generic parameters for port 12.

```

mpsm_node1.9.MPSM155 [FR] .a > dspportsct gen 12
+-----+
| Service Class Template [ 0] : General Parameters      |
| Major Version [ 1]           : Minor Version [ 0]     |
+-----+
| SERV-TYPE(HEX) | COSE_NUM |
+-----+
| FR_HIPRIORITY(500) | 21 |
| FR_LOPRIORITY(501) | 22 |
+-----+

```

In the following example, the user displays all CoSThr parameters for port 12.

```
mpsm_node1.9.MPSM155 [FR] .a > dspportsct cosThr 12
+-----+
| Service Class Template [ 0] : COSB Threshold Parameters |
| Major Version [ 1]          : Minor Version [ 0]         |
+-----+
| COSB | FR_MAX_THR | DE_THR | FECN_THR |
|      | (milliSec) | (0.0001%) | (0.0001%) |
+-----+
| 21 |      6826 |      500 |      800 |
| 22 |      6826 |      500 |      800 |
+-----+
```

In the following example, the user displays all Frame Relay VC threshold parameters for port 12 in cellbytes.

```
mpsm_node1.9.MPSM155 [FR] .a > dspportsct vcFR 12 -units cellbyte
+-----+
| SCT [ 0] : Interworking and Congestion Control Parameters |
+-----+
| SERV TYPE(DEC) | DE TAG | FECN | DE TO | CLP TO |
|                | ENABLE | TO EFCI | CLP MAP | DE MAP |
+-----+
| FR_HIPRIORITY(1280) | DISABLED | SET_ZERO | MAP | MAP |
| FR_LOPRIORITY(1281) | DISABLED | SET_ZERO | MAP | MAP |
+-----+
| SERV TYPE(DEC) | MAX Th | FECN | DE |
|                | MILLSEC | 0.0001% | 0.0001% |
+-----+
| FR_HIPRIORITY(1280) |      341 |      103 |      499 |
| FR_LOPRIORITY(1281) |      341 |      103 |      499 |
+-----+
```

dsppplink

Display a PPP

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dsppplink** command to display a PPP link.

Syntax

dsppplink <link>

Syntax Description

<i>link</i>	Specifies the PPP link number to display.
-------------	---

Note Enter the **dsppplinks** command to display all MLPPP links on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

addppplink, **cnfppplink**, **delpplink**

Example

In the following example, the user displays PPP link 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppplink 5
PPP Link ID           : 5
AdminStatus           : Up
OperState             : Up
Fail Reason           : NoAlarm
BundleID              : 5
PhysicalLineID        : 1.5
DSLLinkStartDS0       : 2
DSLLinkNumDS0         : 31
DSLLink56KbpsMode     : Disable
MRU                   : 1500
LcpTimeout            : 10000
LcpLoopCheck          : Disable
RemoteMRU              : 1500
PFCReceive            : Enable
ACFCReceive           : Enable
PFCTransmit           : Disable
ACFCTransmit          : Disable
PFCTransmitOper       : Disable
ACFCTransmitOper      : Disable
LinkDescriptor        : LineSide
RestartTimer          : 3000
MaxConfigReqRetry     : 10
MaxTerminateReqRetry  : 2
LcpMaxEchoReqRetry    : 5
MaxFailures           : 5
```


dsppplinks

Display PPP Links

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dsppplinks** command to display all PPP links on the card.

Syntax

dsppplinks

Attributes

Log: no State: active Privilege: any

Related Commands

addppplink, cnfppplink, delppplink

Example

In the following example, the user displays all PPP links on an MPSM-16-T1E1 card.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppplinks
```

Link Number	Admin State	Oper State	Start DS0	Number of DS0	Bundle Number	Bay.Line Number	PPP Link Description
2	Up	Up	2	31	2	1.2	LineSide
5	Up	Up	2	31	5	1.5	LineSide
6	Up	Up	2	31	5	1.6	LineSide
7	Up	Up	2	31	5	1.7	LineSide
8	Up	Up	2	31	5	1.8	LineSide
13	Up	Up	2	31	13	1.13	LineSide
14	Up	Up	2	31	13	1.14	LineSide
15	Up	Up	2	31	13	1.15	LineSide
16	Up	Up	2	31	13	1.16	LineSide
513	Up	Down	1	0	2	N/A	SwitchSide
516	Up	Up	1	0	5	N/A	SwitchSide
524	Up	Up	1	0	13	N/A	SwitchSide

In the following example, the user displays all PPP links on an MPSM-T3E3-155 card.

```
M8850_SF.10.MPSM155PPP[FR].a > dsppplinks
```

Link Number	Admin State	Oper State	Start DS0	Number of DS0	Bundle Number	Path Id	PPP Link Description
1	Up	Up	1	24	1	1.1:1	LineSide
2	Up	Up	1	24	2	1.2:1	LineSide
12	Up	Up	1	24	1	1.1:2	LineSide
22	Up	Up	1	24	2	1.2:2	LineSide
512	Up	Down	1	0	1	N/A	SwitchSide
513	Up	Down	1	0	2	N/A	SwitchSide

dsppplnkcnt

Display statistics on a PPP Link

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dsppplnkcnt** command to display statistics on a PPP link.

Syntax

dsppplnkcnt *<link>* *<intvl>*]

Syntax Description

<i>link</i>	Specifies the PPP link number for which to display statistics.
	Note Enter the dsppplinks command to display all MLPPP links on the card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Attributes

Log: no State: active Privilege: any

Related Commands

clrppplnkcnt

Example

In the following example, the user displays statistics for interval 1 on PPP link 5 on an MPSM-16-T1E1:

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppplnkcnt 1 0
MLPPP Link Number      : 1
Interval Number        : 0

Receive Packets        :          164
Receive Bytes          :          2296
Receive Discard Bytes  :           0
Receive MRU Errors     :           0
Receive FCS Error Packets :         0
Receive Miscellaneous Errors :         0
Send Packets           :           164
Send Bytes             :          2296
```

In the following example, the user displays statistics for interval 1 on PPP link 1 on an MPSM-T3E3-155:

```
M8850_SF.10.MPSM155PPP[FR].a > dsppplnkcnt 1 1
MLPPP Link Number      : 1
Interval Number        : 1

Receive Packets        :      180
Receive Bytes          :      2160
Receive Discard Bytes  :          0
Receive MRU Errors     :          0
Receive Discard Packets :          0
Send Packets           :      180
Send Bytes             :      2160
```

dsppppmux

Display a PPPMUX configuration.

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dsppppmux** command to display PPPMUX information for an MLPPP bundle.

Syntax

dsppppmux *<bundleNumber>*

Syntax Description

<i>bundleNumber</i>	Specifies the MLPPP bundle number for which to display PPPMUX information.
Note	Enter the dsmpbundles command to display all MLPPP bundles on the card.

Attributes

Log: no State: active Privilege: any

Related Commands

addpppmux, **cnfpppmux**, **delpppmux**

Example

In the following example, the user displays the PPPMUX configuration on MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppppmux 5
Mux Bundle Number      : 5
Mux Protocol Status    : Active
MuxEnable State        : Enable
MuxOperStatus          : OperUp
DeMuxEnable State      : Enable
DeMuxOperStatus        : OperUp
DeMuxPID               : 33
DeMuxRemotePID         : 33
MuxTimer               : 600
MuxMaxSubFrameLength   : 64
MuxMaxSubFrameCount    : 15
MuxMaxFrameLength      : 256
```

dsppppmuxcnt

Display PPPMUX statistics on an MLPPP Bundle.

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dsppppmuxcnt** command to display PPPMUX statistics on an MLPPP bundle.

Syntax

dsppppmuxcnt *<bundleNumber>* *<intvl>*

Syntax Description

<i>bundleNumber</i>	Specifies the MLPPP bundle number for which to display PPPMUX statistics. Note Enter the dspmpbundles command to display all MLPPP bundles on the card.
<i>intvl</i>	The time interval to display (0–96). Interval 0 is the current 15-minute and 24-hour interval. Interval 1 is the most recent 15-minute interval. Interval 2 is the next most recent 15-minute interval, and so on. Interval 96 is the oldest 15-minute interval.

Attributes

Log: no State: active Privilege: any

Related Commands

clrpppmuxcnt

Example

In the following example, the user displays PPPMUX statistics for interval 1 of MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > dsppppmuxcnt 5 1
MLPPP MUX Number      : 5
Interval Number       : 1

Receive Subframes     :          0
Receive Packet        :          0
Receive Error Packets :          0
Send Sub Frames       :          333
Send Packets          :          333
Send Non-Mux Packets  :          720
```

dspprf

Display Profiler

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspprf** command to display information in the profiler facility. It collects and displays statistics from resource usage. The resources include:

- Message queue
- Memory usage
- Memory chunks

Additionally, the **dspprfhist** command displays CPU usage.



Caution

The profiler is a facility intended for developers at Cisco Systems. Because of the possibly large CPU overhead involved with the profiler, using **dspprf** on an overloaded switch can have unpredictable and unacceptable consequences. For example, it could overwhelm a marginally functioning switch. For this reason, you should contact the TAC before using **dspprf** and never run it for exploratory or experimental reasons. For a safer look at system resources, use the Resource Monitoring commands (**cnfrmrsrc**, **dsprmalms**, **dsprmrsrc**, **dsprmrsrcs**, and **dsprminfo**) or the **dspprfhist** command.

Syntax

dspprf <type> <category>

Syntax Description

<i>type</i>	This parameter determines the display option: <ul style="list-style-type: none"> • t = total display • i = interval display
<i>category</i>	This parameter determines which resource to display. Enter one of the following letters to indicate the resource you want to display: <ul style="list-style-type: none"> • m = displays the memory used for each task. • n = displays a memory chunk. • q = displays message queue profiler information. • r = displays available memory in each memory partition. <p>Note Option q is not supported in Release 5 of the MPSM-T3E3-155.</p>

Related Commands

dspprfhist, **cnfrmrsrc**, **dsprmalms**, **dsprmrsrc**, **dsprmrsrcs**, **dsprminfo**

Attributes

Log: no State: active, standby, init Privilege: SERVICE_GP

Example

In the following example, the user displays the total memory information.

```
M8830_CH.12.MPSM155 [ATM] .a > dspprf t r
          Aval      Fail
STATIC          75423744      0
DYNAMIC         20570112      0
STATISTIC       41140224      0
```

dspprfhist

Display Profiler History

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspprfhist** command to display CPU usage. The information consists of a percent of CPU time used by individual tasks. The information appears in “buckets” (see Example). You can specify the maximum number of “CPU utilization information” buckets that are displayed. Each bucket reflects the overall CPU utilization of the tasks in a five-second polling interval.



Note

This command applies primarily to internal Cisco developers.

Syntax

dspprfhist [*buckets*]

Syntax Description

<i>buckets</i>	Specifies the number of buckets to display. If you do not specify the number of buckets, the command displays 10 buckets. Range: 1-120 Default: 10
----------------	--

Related Commands

dspprf, **cnfrmrsrc**, **dsprmalms**, **dsprmrsrc**, **dsprmrsrcs**, **dsprminfo**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays two buckets of CPU usage history.

```
M8850_SF.9.MPSM155[FR].a > dspprfhist 2
CURRENT TIME          21:13:37
Sample #              0
21:13:31 (From) -21:13:36 (To)
TASK                  TaskId          %
-----
INTERRUPT             -            0.0000
KERNEL                -            0.0000
IDLE                  -            98.0000
UNKOWN                -            0.0000
hw_timer_Ta          48            0.0000
Stats Manag           59            0.0000
```



```
Sample #      -1
21:13:26 (From) - 21:13:31 (To)
TASK          TaskId          %
-----
INTERRUPT    -             0.0000
KERNEL      -             0.0000
IDLE        -             98.0000
UNKOWN      -             0.0000
hw_timer_Ta 48             1.0000
dcTask0     57             0.0000
```

dsprmalms

Display Resource Alarms

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprmalms** command to display the resource alarms being monitored on the card.

Syntax

dsprmalms]

Syntax Description

None

Related Commands

dsprmrsrc, dsprmrsrcs, dsprminfo

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays alarm monitor information.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dsprmalms
===== [Resource Monitoring Alarm ] =====
ID      Name                               Critical      Major      Minor
-----
0       Static Memory                          0            0            0
1       Dynamic Memory                         0            0            0
2       Stats Memory                           0            0            0
3       SNMP Memory                            0            0            0
4       IPC Small Buffer                         0            0            0
5       IPC Medium Buffer                       0            0            0
6       IPC Large Buffer                        0            0            0
7       IPC Huge Buffer                         0            0            0
8       IPC MBlk Buffer                         0            0            0
9       CPU Free                               0            0            0
10      System Memory                          0            0            0
11      Timer                                  0            0            0
12      FD(File Descriptor)                    0            0            0
13      VxWorks FD                             0            0            0
14      System Uptime                          0            0            0
-----
TOTAL:                                0            0            0
```

dsprminfo

Display Resource Information

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprminfo** command to display resource information being monitored on the local card.

Syntax

dsprminfo

Syntax Description

None

Related Commands

dsprmrsrc, **dsprmrsrcs**, **dsprmalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays resource information.

```
M8850_SF.10.MPSM155 [FR] .a > dsprminfo
===== [Task Info] =====
numOfRsrcs   : 15          Attempt           : 0
actInterval  : 1           maxTrapResend   : 10
trapInterval : 300        alarmCriCnt     : 0
alarmMajCnt  : 1           alarmMinCnt     : 0

===== [statistics] =====
pollTotalCnt      : 473811    pollFailCnt           : 0
pollOkCnt         : 473811    pollNumFuncCnt       : 0
pollOk2LowCnt     : 2         pollOk2MedCnt        : 0
pollMed2LowCnt    : 0         pollLow2OkCnt        : 1
pollMed2OkCnt     : 0         pollTimerTimeoutCnt  : 473811
pollTimeoutRsrcNullCnt : 0     pollTimerSucceedScheduleCnt: 473811
pollTimerFailScheduleCnt: 0     pollTimerUnexpectedCnt : 0

alarmUpdateTotalCnt : 3         alarmUpdateSucceedCnt : 3
alarmUpdateFailCnt  : 0
trapTimerTimeoutCnt : 11        trapTimerUnexpected   : 0
trapTimerSuccScheduleCnt: 13     trapTimerFailScheduleCnt : 0
actSucceedCnt       : 748110    actFailCnt           : 0
actTimerTimeoutCnt  : 748113    actTimerUnexpectedCnt : 0
actTimerOkScheduleCnt : 748113    actTimerFailScheduleCnt : 0
unknownTimerCnt     : 0         comEpWaitBreak       : 0
```

dsprmrsrc

Display Resource Monitor Resource

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprmrsrc** command to display resource information being monitored on the specified ID.

Syntax

dsprmrsrc *<rsrcID>*

Syntax Description

<i>rsrcID</i>	Resource Index, in the range 0-14
	<ul style="list-style-type: none"> • 0 = static memory • 1 = dynamic memory • 2 = statistics memory • 3 = SNMP memory • 4 = IPC small buffer • 5 = IPC medium buffer • 6 = IPC large buffer • 7 = IPC huge buffer • 8 = IPC mblk buffer • 9 = CPU free • 10 = system memory • 11 = timer • 12 = file descriptor • 13 = VxWorks file descriptor • 14 = system uptime

Related Commands

cnfmrsrc, **dsprminfo**, **dsprmrsrcs**, **dsprmalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays resource information for the dynamic memory.

```
M8850_SF.10.MPSM155[FR].a > dsprmrsrc 1
===== [Resource Information] =====
Resource Name      : Dynamic Memory      Maximum size      : 20299776
Resource State     : OK                  Cur size (Byte)   : 19376672
IgnoreMedium       : No                  Low WaterMark     : 19376672
Threshold Type     : value                Poll interval (sec) : 30
Low threshold %    : 12.0                 Low threshold value : 2435880
Medium threshold %: 13.0                 Medium threshold value: 2638870
High threshold %   : 14.0                 High threshold value : 2841860

===== [Action Information] =====
          Send          Alarm Severity      Alarm
          Trap          Critical Major Minor      Clear
-----
Low Action: yes/major  no          yes      no      no
Med Action: yes/major  no          no       yes     no
Ok Action : yes/info   no          no       no     yes

===== [Statistics Information] =====
Total polls   : 24943          Failed polls     : 0
Ok to low     : 0              Low to ok       : 0
Ok to med     : 0              Med to ok       : 0
Med to low    : 0
Traps sent OK : 0              Traps sent failures: 0

===== [Other Information] =====
Largest Free Size : 19375984      Hi priority alloc: 13547
Low priority alloc: 4              Alloc failures   : 0
```

dsprmrsrcs

Display Resource Monitor Resources

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprmrsrcs** command to display summary information for all resources being monitored.

Syntax

dsprmrsrcs

Syntax Description

None

Related Commands

dsprminfo, **dsprmrsrcs**, **dsprmalms**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (Frame Relay)

The following example displays resource information on an MPSM-T3E3-155 card.

```
M8850_SF.10.MPSM155[FR].a > dsprmrsrcs
Id      Name                State   Max      Current   Low      Medium   High   Enable
=====
0  Static Memory        LOW    74432512 6012160  6252240  6382495  7294280  ON
1  Dynamic Memory       OK     20299776 19376672 2435880  2638870  2841860  ON
2  Stats Memory         OK     40599552 40599552 487080   527670   568260   OFF
3  SNMP Memory          OK     13533184 13514960 811920   879580   947240   ON
4  IPC Small Buffer      OK     4128      4128     1237     1340     1443     ON
5  IPC Medium Buffer     OK     800       800      240      260      280      ON
6  IPC Large Buffer      OK     1200      1200     360      390      420      ON
7  IPC Huge Buffer       OK     856       852      255      276      298      ON
8  IPC MBlk Buffer       OK     9484      9480     1137     1232     1327     ON
9  CPU Free             OK     100       100      5         7         10      ON
10 System Memory       OK     63615328 8611520  6361500  7633800  9542250  ON
11 Timer               OK     1000      968      50        60        80      ON
12 FD(File Descriptor) OK     100       99       5         6         8       ON
13 VxWorks FD          OK     500       500      25        32        40      ON
14 System Uptime      OK     --        8         460      440      --      ON
```

dsprscrptn

Display Resource Partition

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprscrptn** command to display information about one resource partition. The displayed information is shown in the example.



Note

The **dsppart** and **dsprscrptn** commands are identical. The name “dsprscrptn” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.



Note

The connection count includes control VCs when you execute **dsppart** on the CLI of a service module.

The total number of connections in the display includes control VCs. The types of control VCs are SSCOP, PNNI-RCC, and ILMI (if ILMI is enabled on an MPSM-T3E3-155 card). To see the connection counts that do not include control VCs, use **dsppnport**.

Syntax (ATM Service Context)

```
dsprscrptn <ifNum> <partId>
```

Syntax Description (ATM Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to display.
Note	The MPSM cards must be in the ATM CLI context if you want to delete a partition from an ATM port.
Note	Enter the dspparts command in the ATM CLI context to display the port numbers and partition IDs for all active ATM ports.
<i>part_id</i>	A number that identifies the partition, in the range 1-20.

Syntax (Frame Relay Service Context)

```
dsprscrptn <ifNum> <ctrlNum>
```

Syntax Description (Frame Relay Service Context)

<i>if_num</i>	The interface number (partition number) of the partition to display.
Note	The MPSM cards must be in the Frame Relay CLI context if you want to delete a partition from a Frame Relay port.
Note	Enter the dspparts command in the Frame Relay CLI context to display the all partition and controller numbers associated with Frame Relay ports.
<i>CtrlNum</i>	Identifies the Controller number.

Related Commands

addpart, cnfpart, delpart, dspparts

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays resource partition 1 on logical port 12.

```

mpsm_node.4.MPSM155[ATM].a > dsprscrtn 12 1
  Interface Number           : 12
  Partition Id               : 1
  Controller Id              : 2
  egr Guaranteed bw(.0001percent): 1000000
  egr Maximum bw(.0001percent) : 1000000
  ing Guaranteed bw(.0001percent): 1000000
  ing Maximum bw(.0001percent)  : 1000000
  min vpi                    : 0
  max vpi                     : 255
  min vci                     : 32
  max vci                     : 65535
  guaranteed connections     : 0
  maximum connections        : 4000
  Number of SPVC             : 1
  Number of SPVP             : 0
  Number of SVC              : 0
  Number of Sig VC           : 0

```

Example (Frame Relay Service Context)

In the following example, the user displays resource partition 2 on logical port 2.

```

mpsm_node.5.MPSM155[FR].a > dsprscrtn 2 2
  Interface Number           : 2
  Partition Id               : pnni
  Controller Id              : 2
  Available LCNs             : 4000
  Min DLCI                   : 0
  Max DLCI                   : 1023
  Ingress Percentage Bandwidth : 100
  Egress Percentage Bandwidth  : 100
  Number of SPVC             : 0

```


dsprscrptns

Display Resource Partitions

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsprscrptns** command to display information for all the resource partitions on the current card. The displayed information is shown in the example.

For information on specific elements of a resource partition, see the description of the **addpart** command.



Note

The **dspparts** and **dsprscrptns** commands are identical. The name “dsprscrptns” is consistent with the corresponding command in Cisco MGX 8850 PXM1-based switch. You can use either command.

Syntax

dsprscrptns

Related Commands

addrscrptns, **delrscrptns**, **cnfrscrptns**, **dsprscrptn**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays all resource partitions.

```
mpsm_node.4.MPSM155 [ATM] .a > dsprscrptns
if part Ctlr egr egr ingr ingr min max min max min max
Num ID ID GuarBw MaxBw GuarBw MaxBw vpi vpi vci vci conn conn
      (.0001%) (.0001%) (.0001%) (.0001%)
-----
12  1  2 1000000 1000000 1000000 1000000  0 255  32 65535  0 4000
13  1  2 1000000 1000000 1000000 1000000  0 255  32 65535  0 4000
```

Example (Frame Relay Service Context)

In the following example, the user displays all resource partitions.

```
mpsm_node.5.MPSM155 [FR] .a > dsprscrptns
if Ctlr Ctlr available min max ingr egr
Num Num ID LCNs DLCI DLCI PctBw PctBw
-----
  2 pnni 2 4000 0 1023 100 100
 50 pnni 2 2000 0 1023 100 100
```

dspsarcnt

Display Segmentation and Reassembly Counters

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspsarcnt** command to display the Segmentation and Reassembly (SAR) counters.

Syntax

dspsarcnt

Syntax Description

None

Related Commands

clrsarcnt

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the SAR counters.

```
M8830_CH.12.MPSM155 [ATM] .a > dspsarcnt
```

```
<SAR General Counters>
```

```
=====
```

```
Frames Transmitted      : 1130997
Frames Transmit Failed  : 0
No Transmit Buffer       : 0
Transmit Unknown LCN    : 0
Frames Received         : 1666184
Frames Receive Failed   : 0
Receive Unknown LCN     : 0
```

dpsct

Display Service Class Template

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dpsct** command to display the contents of an port or card level service class template (SCT). For more information about SCTs, see the description of SCTs in the switch software configuration guide.



Note

Enter the **dpscts** command on the PXM to see a list of all available SCTs.



Note

Currently, the system does not support certain parameters in the service class templates (SCTs), so you can specify them through **addcon**, **cnfcon**, or Cisco WAN Manager. These parameters are (when applicable) PCR, SCR, and ICR.

Syntax (ATM CLI Context)

```
dpsct {gen | vcThr | cosThr} <scID> {port | card}
```

Syntax Description (ATM CLI Context)

gen vcThr cosThr	An aspect of the SCT for display. Replace <gen vcThr cosThr> with one of the following aspects: <ul style="list-style-type: none"> gen—policing and CAC vcFR—Frame Relay VC thresholds cosThr—class of service buffer (CoSB) thresholds
<i>scID</i>	Specifies the number of the SCT to display, in the range 0- 255. Note Enter 0 to display the contents of the default SCT.
port card	A keyword that specifies the type of SCT to display, either port or card.

Syntax (Frame Relay and PPP CLI Context)

```
dspst { gen | vcFR | cosThr } <sctID> { port | card }
```

Syntax Description (Frame Relay and PPP CLI Context)

gen	A specific part of the SCT, as follows:
cosThr	<ul style="list-style-type: none"> • gen: general SCT information
vcFR	<ul style="list-style-type: none"> • cosThr: class of service buffer (CoSB) thresholds • vcFR: VC Frame Relay parameters
<i>sctID</i>	Specifies the number of the SCT to display, in the range 0- 255. Note Enter 0 to display the contents of the default SCT.
port card	A keyword that specifies the type of SCT to display, either port or card.

Related Commands

cnfcdset, dspcdset, dspportset, dspst, setsctver

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example (ATM Service Context)

In the following example, the user displays the general VC part of the card SCT file number 0 (the default SCT).

```
mipsm_node1.9.MPSM155 [ATM] .a > dspst gen 0 card
+-----+
| Service Class Template [ 0] : General Parameters |
| Major Version [ 1]          : Minor Version [ 0]  |
+-----+
| SERV-TYPE (HEX) | COSE_NUM |
+-----+
|   ATMF_CBR1 (100) | 2 |
|   ATMF_VBRrt1 (101) | 5 |
|   ATMF_VBRrt2 (102) | 5 |
|   ATMF_VBRrt3 (103) | 5 |
|   ATMF_VBRnrt1 (104) | 9 |
|   ATMF_VBRnrt2 (105) | 9 |
|   ATMF_VBRnrt3 (106) | 9 |
|   ATMF_UBR1 (107) | 13 |
|   ATMF_UBR2 (108) | 13 |
|   ATMF_ABR (109) | 10 |
|   ATMF_CBR2 (10a) | 2 |
|   ATMF_CBR3 (10b) | 2 |
|   FR_ATMCBR (502) | 2 |
|   FR_ATMVBRrt (503) | 5 |
|   FR_ATMVBRnrt (504) | 9 |
|   FR_ATMABR (505) | 10 |
|   FR_ATMUBR (506) | 13 |
+-----+
```

Example (Frame Relay Service Context)

In the following example, the user displays the Frame Relay VC part of the port SCT file number 0 (the default SCT).

```
M8830_CH.12.MPSM155[FR].a > dpsct vcFR 0 port
```

```
+-----+
| SCT [ 0] : Interworking and Congestion Control Parameters |
+-----+
| SERV TYPE(DEC) | DE TAG | FECN | DE TO | CLP TO |
|                | ENABLE | TO EFCI | CLP MAP | DE MAP |
+-----+
| FR_HIPRIORITY(1280) | DISABLED | SET_ZERO | MAP | MAP |
| FR_LOPRIORITY(1281) | DISABLED | SET_ZERO | MAP | MAP |
+-----+
| SERV TYPE(DEC) | MAX Th | FECN | DE |
|                | MILLSEC | 0.0001% | 0.0001% |
+-----+
| FR_HIPRIORITY(1280) | 8192 | 100000 | 500000 |
| FR_LOPRIORITY(1281) | 8192 | 100000 | 500000 |
+-----+
```

dsptotals

Display Totals

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dsptotals** command to display line, path, group, bundle, link, port and connection totals for the current card.



Note

The **dsptotals** command display does not include signaling connections.

Syntax

dsptotals

Syntax Description

None.

Related Commands

None.

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM or Frame Relay)

In the following example, the user displays lines, paths, groups, bundles, links, ports and connections for an MPSM-T3E3-155.

```
M8850_SF.9.MPSM155 [FR] .a > dsptotals
  Interfaces  Total Max  Admin Up  Available  Alarm
  Physical Lines      2      1      1      1      0
  Sonet STS/SDH-AU    1      1      1      0      0
  Sonet/SDH-TU      28      4      4      24      0
    DS3              0      0      0      0      0
    E3                0      0      0      0      0
    DS1              28      4      4      24      0
    E1                0      0      0      0      0
  IMA Groups        42      1      1      41      0
  MFR Bundles       42      1      1      41      0
    IMA Links        28      1      1      24      0
    MFR Links        28      1      1      24      0

  Interfaces  Total Max  Configured  Available  Alarm
  ATM Ports   128      2      2      126      0
  FR Ports   1000      2      2      998      0
  ATM Connections  4000      0      0      3999*    0
  FR Connections  4000      1      1      3999*    0
```

* Signaling connections are not included here. Please use dspload to get more information.

In the following example, the user displays lines, groups, bundles, ports and connections for a MPSM-16-T1E1 in the Frame Relay mode.

```
M8850_SF.27.MPSM16T1E1[FR].a > dsptotals
  Interfaces  Total Max  Admin Up  Available  Alarm
  Physical Lines      16      2      14      1
  IMA Groups         16      0      16      0
  IMA Links           2      0      0      0

  Interfaces  Total Max  Configured  Available  Alarm
  ATM Ports      32      1      31      1
  FR Ports       496      1      495      0
  ATM Connections 2000      0      1999*    0
  FR Connections 2000      1      1999*    0
```

* Signaling connections are not included here. Please use dspload to get more information.

Example (PPP Context)

In the following example, the user displays lines, ports, bundles, and PPP links for a MPSM-16-T1E1 card in PPP mode.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > dsptotals
  Interfaces  Total Max  Admin Up  Available  Alarm
  Physical Lines      16      9      7      0
  MP Bundles         16      2      14      0
  PPP Links           16      8      8      0

  Interfaces  Total Max  Configured  Available  Alarm
  FR Ports       496      2      494      0
  FR Connections 2000      1      1999*    0
```

* Signaling connections are not included here. Please use dspload to get more information.

In the following example, the user displays lines, paths, ports, bundles, PPP links, and WinPath information for a MPSM-T3E3-155 card in PPP mode.

```
M8850_SF.10.MPSM155PPP[FR].a > dsptotals
  Interfaces  Total Max  Admin Up  Available  Alarm
  Physical Lines      3      2      1      0
  Sonet STS/SDH-AU    0      0      0      0
  Sonet/SDH-TU       0      0      0      0
    DS3              0      0      0      0
    E3                0      0      0      0
    DS1              56      8      48      0
    E1                0      0      0      0
  MP Bundles         84      2      82      0
  PPP Links           84      4      80      0

  winpath  Total Max  Configured
  MpBundles on WP      1      64      1
  MpBundles on WP      2      64      1

  Config BW on WP      1      2016 DS0s  48 DS0s
  Config BW on WP      2      2016 DS0s  48 DS0s

  Interfaces  Total Max  Configured  Available  Alarm
  FR Ports    1000      2      998      0
  FR Connections 4000      1      3999*    0
```

* Signaling connections are not included here. Please use dspload to get more information.

dsptug3cnf

Display TUG-3 Configuraiton

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsptug3cnf** command to display the path number, TUG-3 ID, and payload type for a specific TUG-3 path in an SDH AU-4 path.

Syntax

dsptug3cnf <Path Number:Tug3>

Syntax Description

<i>Path Number:Tug3</i>	Identifies the TUG-3 you want to display, in the following format:
-------------------------	--

bay.line.au:tug3

where bay = 1, line = 1, au = 0, tug3 = 1-3

Note To display all TUG-3 paths, enter the **dsptug3s** command.

Related Commands

cnftug3, **dsptug3s**

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example

In the following example, the user displays the TUG-3 with the ID 1.1.0:1.

```
M8850_NY.13.MPSM155[FR].a > dsptug3cnf 1.1.0:1
Path Number      : 1.1.0
Tug3 Id          : 1                Payload Type      : tu3ds3
```


dsptug3s

Display TUG-3s

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **dsptug3s** command to display the TUG3 ID and payload type for all three TUG-3 paths.

Syntax

dsptug3s

Related Commands

cnftug3, **dsptug3cnf**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the IDs and payloads for all TUG-3s.

```
M8850_SF.9.MPSM155 [ATM] .a > dsptug3s
```

Tug3Id	payload
1.1.0:1	vc11
1.1.0:2	tu3ds3
1.1.0:3	vc12

dspversion

Display Version

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspversion** command to display version information for boot and runtime firmware images residing on a card. Typically, you use the **dspversion** command in conjunction with the following PXM commands that let you change a card's firmware version:

- **abortrev**
- **commitrev**
- **loadrev**
- **runrev**
- **setrev**

For example, you can enter the **dspversion** command to see if a particular firmware version is currently running.

Firmware Filenames

The FW directory on the hard drive contains firmware files. Each firmware file has the *fw* file extension. The format of a released firmware filename follows:

cardtype_version-element.fw

The *version-element* portion of a filename has the following format:

major-release.minor-release.maintenance.patch[phase].



Note

The *phase* element appears only in pre-release firmware filenames. A release firmware file does not contain the *phase* element at the end of the firmware filename.

The following table describes the information contained in the example filename “mpsm155_005.000.001.002-D.fw”:

Card Type	Major Release	Minor Release	Maintenance Release	Patch	Phase (pre-release software only)
mpsm155	005.	000.	001.	002.	-D

The range for each *release*, *maintenance*, and *patch* is 0–255.



Note

The FW directory may contain several revisions of the firmware files, or it may contain only the most current firmware files, depending on how often you delete older versions of the firmware from this directory.

Version Numbers

The format of a *version* number follows:

major-release.minor-release(maintenance.patch)phase

The firmware version number is derived from the firmware filename. Using the example “mpsm155_005.000.001.002-P1.fw,” the version portion is 5.0(1.2)P1.

The following table describes the information contained in the firmware version number 5.0(1.2)P1:

Firmware Version (Major Release)	Firmware Version (Minor Release)	Maintenance Release	Patch Release	Pre-Release Firmware Phase Number
5.	0.	1.	2	P1
				Note In this example, P1 indicates that this is pre-released software. Such alphanumeric characters will not appear at the end of released software version numbers.



Note

Prerelease firmware does not include patches; instead, the maintenance release number is increased for each software change.



Note

Prerelease, developmental firmware versions have one or two alphanumeric characters at the end of the version number.

For example, the Help display for a **setrev** command gives examples of *revision*, but only the first two items in the following table could be in the *released* product. These two items show major release 5, minor release 0, and the minimal maintenance number of 1 (per IOS precedent).

The following table shows some example filenames and the correct version numbers to use with the revision management commands. Note that the first two examples are released firmware, and the last two examples are for pre-release firmware.

Filename	Version Number for Revision Management Commands
mpsm155_020.000.001.000.fw	20.0(1)
	Note In this example, a phase number is absent, indicating that this is a released version of the firmware
mpsm155_005.000.001.001.fw	5.0(1.1)
	Note In this example, a phase number is absent, indicating that this is a released version of the firmware.

Filename	Version Number for Revision Management Commands
mpsm155_005.000.016-D.fw	5.0(16)D
	Note In this example, the phase number is D, indicating that this is a pre-released version of the firmware.
mpsm155_005.000.000.014-P1.fw	5.0(14)P1
	Note In this example, the phase number is P1, indicating that this is a pre-released version of the firmware.

Syntax

dspversion

Syntax Description

None.

Related Commands

dspcd

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays details for the boot and runtime firmware images.

```
M8850_SF.9.MPSM155 [FR] .a > dspversion
```

Image Type	Shelf Type	Card Type	Version	Built On
Runtime	MGX	MPSM-T3E3-155	5.1(0.200)	Jan 4 2005, 20:59:31
Boot	MGX	MPSM-T3E3-155	5.1(0.200)	-

dspvsicon

Display Virtual Switch Interface Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155 , MPSM-16-T1E1

Enter the **dspvsicon** command to display VSI connection of the card.

Syntax (ATM)

```
dspvsicon <ifnum> <vci> <vpi> [<dblvl>]
```

Syntax Description (ATM Context)

<i>ifNum</i>	Interface number (port number) of the connection to display. Note Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.
<i>dblvl</i>	Indicates the extent of debugging information to be displayed: <ul style="list-style-type: none"> • 1 = Display summary information • 2 = Display summary information, plus table summary information • 3 = Display all debugging information, which includes the following: <ul style="list-style-type: none"> – Summary information – Table summary information – Detailed table summary information. <p>Default: 1</p>

Syntax (Frame Relay and PPP Context)

```
dspvsicon [-part <partindx>] [-cksm <blk>] [-type {svc | spvc | both}] [-linfrmt {hex | phy}]  
[-sngl {0 | 1}] [-llin <local lin> [-rln <remote lin>] [-lvpi <local vpi>] [-rvpi <remote vpi>]  
[-lvci <local vci>] [-rvci <remote vci>] [-rslot <remote slot>] [-verbose {0 | 1}]
```

Syntax Description (Frame Relay or PPP)

-part	VSI partition index, in the range 1-20
-cksm	Checksum block, in the range 0-83
-linfrmt	Set line format display: <ul style="list-style-type: none"> • 0 = phy • 1 = hex <p>Default: hex</p>

-single	Connections to display: <ul style="list-style-type: none"> • 0 = all connections • 1 = single endpoint connections Default: 0
-llin	Filter on local line.
-rlin	Filter on remote line.
-lvpi	Filter on local vpi, in the range 0-4095
-rvpi	Filter on local vpi, in the range 0-4095
-lvci	Filter on remote vci, in the range 1-65535
-rvci	Filter on local vci, in the range 1-65535
-rslot	Filter on remote slot.
-verbose	Set verbose mode: <ul style="list-style-type: none"> • 1 = enable • 0 = disable

Related Commands

dspvsicons

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example (ATM Context)

In the following example, the user displays the VSI connection.

```
M8850_SF.10.MPSM155[ATM] .a > dspvsicon 17 44 55
cRef  State   Type      lLin    lVpi lVci   rLin    rVpi rVci   cksmVal
-----
00107 Cmtted   s/spvc    010a1811 0044 000055 010a1812 0045 000056 3f6c1823

connInDb  chkSumBlkId
-----
YES      000004

Endpoint Info - Local
-----
persistEp e2eTerm inhibitRx inhibitTx oamEp
-----
TRUE      FALSE  FALSE  FALSE  SEGMENT
sendInactiveInd sendAlarmInd sendRmtAlarmInd
-----
ACTIVE    FALSE  FALSE

Endpoint Info - Remote
-----
persistEp e2eTerm inhibitRx inhibitTx oamEp
-----
TRUE      FALSE  FALSE  FALSE  SEGMENT

Type <CR> to continue, Q<CR> to stop:
```

```

sendInactiveInd sendAlarmInd sendRmtAlarmInd
-----
ACTIVE          FALSE          FALSE

tcb_addr Last FSM Called   FSM rc   Usage Count
-----
00000000 VcoCmls__Cd           000001  0003

```

Example (Frame Relay or PPP Context)

In the following example, the user displays VSI connection information in verbose mode.

```

M8850_SF.25.MPSM16T1E1PPP[FR].a > dspvsicon -verbose 1
LCN  Type      lLin  lVpi  lVci  rLin  rVpi  rVci  cksmVal  pCref
=====
-----
Conns for Partition: 000, chksum index: 7
-----
00096 p/spvc    01191fff 0008 001000 01011802 0000 000101 fe6e1bee 0000
-----
Conns for Partition: 000, chksum index: 67
-----
00097 p/spvc    01191fff 0024 001000 01011802 0000 000102 fe7f1bec 0000
Partition 1 is not in use
Partition 2 is not in use
Partition 3 is not in use
Partition 4 is not in use
Partition 5 is not in use
Partition 6 is not in use
Partition 7 is not in use
Partition 8 is not in use
Partition 9 is not in use
Partition 10 is not in use
Partition 11 is not in use
Partition 12 is not in use

Type <CR> to continue, Q<CR> to stop:
Partition 13 is not in use
Partition 14 is not in use
Partition 15 is not in use
Partition 16 is not in use
Partition 17 is not in use
Partition 18 is not in use
Partition 19 is not in use

```

dspvsicons

Display Virtual Switch Interface Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **dspvsicon** command to display all VSI connections on the card.

Syntax

```
dspvsicon [-part <partindx>] [-cksm <blk>] [-type {svc | spvc | both}] [-linfrmt {hex | phy}]
[-sngl {0 | 1}] [-llin <local lin>] [-rlin <remote lin>] [-lvpi <local vpi>] [-rvpi <remote vpi>]
[-lvci <local vci>] [-rvci <remote vci>] [-rslot <remote slot>] [-verbose {0 | 1}]
```

Syntax Description

-part	VSI partition index, in the range 1-20
-cksm	Checksum block, in the range 0-83
-linfrmt	Set line format display: <ul style="list-style-type: none"> • 0 = phy • 1 = hex Default: hex
-sngle	Connections to display: <ul style="list-style-type: none"> • 0 = all connections • 1 = single endpoint connections Default: 0
-llin	Filter on local line.
-rlin	Filter on remote line.
-lvpi	Filter on local vpi, in the range 0-4095
-rvpi	Filter on local vpi, in the range 0-4095
-lvci	Filter on remote vci, in the range 1-65535
-rvci	Filter on local vci, in the range 1-65535
-rslot	Filter on remote slot.
-verbose	Set verbose mode: <ul style="list-style-type: none"> • 1 = enable • 0 = disable

Related Commands

dspvsicon

Attributes

Log: no

State: active, standby

Privilege: ANYUSER

Example

In the following example, the user displays the VSI connection.

```
M8850_NY.13.MPSM155 [ATM] .a >dspvsicons
```

```
LCN   Type      lLin   lVpi  lVci   rLin   rVpi  rVci  cksmVal  pCref
=====
00019 s/svc      0101180b 0000 000018 01073b22 0001 000036 d810190f 0000
00020 s/svc      0101180b 0000 000005 01073b22 0001 000035 d8101810 0000
65537 s/svc      01011815 0000 000018 01073b22 0001 000038 21e978f3 0000
65538 s/svc      01011815 0000 000005 01073b22 0001 000037 21e97cd0 0000
65545 s/svc      01011815 0011 000091 010c1801 0000 000038 2d822e93 0000
65540 s/svc      01011815 0011 000081 0106180d 0011 000100 01591873 0000
65547 p/svc      01011815 0011 000093 010c1801 0000 000040 3124185c 0000
```

dspvsiparts

Display Virtual Switch Interface Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16T1E1

Enter the **dspvsiparts** command to display all VSI partitions configured on the card.

Syntax

dspvsiparts

Syntax Description

None.

Related Commands

dspvsicons

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays all VSI partitions.

```
M8850_SF.25.MPSM16T1E1 [ATM] .a > dspvsiparts
-----
                Partition database
-----
Idx  partId  BlkInUse  BlkMax  numConn
-----
000   0000    0002    0083    0004
```

dspwinpathload

Display the load on a WinPath processor

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **dspwinpathload** command to display interval loads for a WinPath packet processing engine.

Syntax

dspwinpathload <winpath> <intvl>

Syntax Description

<i>winpath</i>	The number of the WinPath packet processing engine for which to display loads. Range: 1-2.
<i>intvl</i>	The number of previous intervals to display, in the range 0–96. Interval 0 is the current interval and interval 96 is the oldest 15-minute interval.

Attributes

Log: no State: active Privilege: any

Related Commands

dspwpbundles, **dsptotals**

Example

In the following example, the user displays loads during intervals 0 through 3 for WinPath 1:

```
M8850_SF.10.MPSM155PPP[FR].a > dspwinpathload 1 3
Winpath :          1
Intval  Duration   Rx Packet/s  Tx Packet/s  Rx Bytes/s    Tx Bytes/s
  0      9min 2s    220           220         2640          2640
  1     15min 0s    360           360         4320          4320
  2     15min 0s    360           360         4320          4320
  3     15min 0s    360           360         4320          4320
```

dspwpbundles

Display WinPath Bundle Assignments

Service Context—PPP

Modules— MPSM-T3E3-155

Enter the **dspwpbundles** command to display the assignment of MLPPP bundles to WinPath packet processing engines. The software maps new MLPPP bundles to the WinPath with the least load; users cannot configure the WinPath resource.

Syntax

dspwpbundles

Syntax Description

None

Attributes

Log: no State: active Privilege: any

Related Commands

dspmpbundles, dsptotals

Example

In the following example, the user displays MLPPP bundle assignments to WinPath resources:

```
M8850_SF.10.MPSM155PPP[FR] .a > dspwpbundles
```

WinpathNum	BundleId
1	1
1	3
2	2

exit

Exit from User Session

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **exit** command to exit the current user session and log out. To start another session, you must log in by using telnet (for example).

Syntax

exit

Related Commands

bye, logout

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user exits from the current user session.

```
Mmpsm_node.4.MPSM155 [ATM] .a > exit
```

```
(session ended)
```

getpcrfromcir

Get Peak Cell Rate (PCR) Value from Committed Information Rate (CIR)

Service Context—Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **getpcrfromcir** command to calculate the PCR from a specified CIR. This calculation adds the equivalent of 1 ATM cell per second to the CIR value, then converts the result to cps using a factor of 1.44. This factor represents the exact ATM cell overhead and AAL5 transport overhead that is incurred when a 100-byte Frame Relay frame is segmented and placed into AAL5 ATM cells using FRF.5 NIW. If the frame size being fragmented is not 100 bytes, then the result can be either too high or too low, and you might have to adjust the PCR slightly up or down.

Syntax

```
getpcrfromcir <cir>
```

Syntax Description

<i>cir</i>	The committed information rate (CIR), in bits per second, to convert to peak cell rate (PCR), in cells per second.
Note	Enter the dspcon <ifNum> <dltci> command to display the CIR for a specific connection.

Related Commands

None.

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user obtains the PCR for the CIR 4000. In this example, the **getpcrfromcir** command returns the PCR “15” for the CIR 4000.

```
mpsm_node1.4.MPSM155 [FR] .a > getpcrfromcir 4000
PCR value: 15 [formula used: (cir + 384 - 1)/384 * 1.44, or 10 minimum]
```

help

Help

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **help** command to list the available commands on the current card. You can use the question mark (?) in place of the word help to get the same results. The **help** command is case-sensitive.

You can use the **help** command or a question mark (?) as follows:

- Enter the **help** command with no parameters to display all the available commands on the card.
- Enter the **help** command with a character string as the parameter to display all commands that contain that character string.
- Enter the **help** command with the name of a command as the parameter to display whether that command is available.

The **help** command does not display commands with a privilege level that is higher than that of the current user.

If you can enter two parameter strings, **help** provides information for each of the two strings separately (not a single, two-part string).

Syntax

help [*string*]

or

? [*string*]

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays all available commands.

```
M8850_SF.9.MPSM155[FR] .a > help
```

```
Available commands
-----
?
addapsln
addbert
addchanloop
addcon
addlnloop
addmaster
addmfrbundle
addmfrlnk
addmfrport
addpart
addport
addrscprtn
addslave
```

```
bootChange
bye
cc
ccc
```

Type <CR> to continue, Q<CR> to stop:

In the following example, the user enters the **help** command, and replaces the [*string*] option with *com* to view all commands associated with a partial command entry string (in this example, all commands that contain *com*).

```
M8850_SF.9.MPSM155 [FR] .a > help con
```

```
Available commands
-----
addcon
cnfcon
delcon
dncon
dspcon
dspconalmcnts
dspconalms
dspcons
dspvsicons
rrtcon
shellConn
tstcon
upcon
```


history

Command History

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **history** command to display the last 10 commands executed on the switch during the current session. To repeat a command with its parameters, type an exclamation mark followed by the associated number, without spaces.



Note

If less than 10 commands have been entered on the switch during the current session, the **history** command only displays those commands. For example, if only 5 commands were entered during a session, then the **history** command displays only those 5 commands (even though the display reads “Size of history is currently 10 line(s).”



Note

This **history** command display includes commands that had errors.



Note

You can also enter the **Up Arrow key** to recall commands in the history buffer, beginning with the most recent command. Each time you hit **Up Arrow key**, one command is displayed, and you must repeat the key sequence to recall older commands successively. You only need to enter the **history** command one time to display all ten commands in the history buffer.

Syntax

history

Syntax Description

No parameters

Related Commands

No related commands

Attributes

Log no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the last 10 commands executed on the switch.

```
NodeB.14.MPSM155 [ATM] .a > history
Size of history is currently 10 line(s)
 1 help
 2 help ima
 3 cc 5
 4 ?
```

```
5 help fr
6 cc 13
7 cc 15
8 cc 14
9 ? ilmi
10 history
```

In the following example, the user displays the last commands executed on the switch. In this example, only 3 commands have been entered on the switch during the current session.

```
M8850_NY.13.MPSM155[ATM].a > history
Size of history is currently 10 line(s)
 1 timeout 0
 2 cc 13
 3 history
```

insbiterror

Insert Bit Error

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **insbiterror** command to insert single bit errors into the transmitted BERT pattern. You can then verify the single error on the receive side, which helps verify that the test is working correctly.

Syntax

```
insbiterror <path_num>
```

Syntax Description

path_num Identifies the path, path, or port with the BERT session into which you want to insert single bit errors.

Note Enter the **dsberts** command to display the line, path, or port numbers configured with BERT sessions. For ports, first change to the appropriate CLI context.

Related Commands

cnfbert, startbert, stopbert

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user inserts a single bit error into the transmitted BERT pattern on the path number 1.1:1.

```
M8830_CH.12.MPSM155 [ATM] .a > insbiterror 1.1:1
```

logout

Log Out

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter **logout** the command to log the user out of the current CLI session.

Syntax

logout

Syntax Description

No parameters

Related Commands

bye, exit

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user logs out of the current CLI shell.

```
NodeB.6.MPSM155 [ATM] .a >logout
```

```
(session ended)
```

```
<Your 'TELNET' connection has terminated>
```

memshow

Show Memory

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **memshow** command to display the memory allocation.

Syntax

memshow

Syntax Description

None.

Related Commands

None

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the memory map.

```
M8830_CH.12.MPSM155 [FR] .a > memshow
  status  bytes  blocks  avg block  max block
  -----
current
  free   9408224      4   2352056   9406480
  alloc 54949024     738    74456     -
cumulative
  alloc 67002640   54558    1228     -
```

movelic

Move Licenses

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **movelic** command to move feature licenses from a service module to the PXM license pool. When service modules are shipped with licenses, the service module is only a shipping container for the licenses. Upon receipt of a service module with licenses installed on it, use the **movelic** command to move the licenses from the service module to the PXM license pool so that the feature licenses are made available for use.



Note

Enter the **dsplccd** command to view which licenses have been installed on the service module and are available to be moved to the PXM license pool.

Syntax

movelic

Related Commands

dsplccd

Attributes

Log: no State: active, standby Privilege: CISCO_GP

Example

In the following example, the user moves licenses from the card in slot 13 to the PXM license pool.

```
mpsm_node.13.MPSM155 [ATM] .a > movelic
-----
Programmed License Type          #Programmed
-----
MultiSrvc                        1
Channelize                       1
MultiLink                        1

Do you want to proceed (Yes/No)? Y

Card Licenses have been moved to license pool.

Card Licenses have been moved to license pool
```

restartimagrp

Restart IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **restartimagrp** command to restart the IMA group at the near end, restart all the internal IMA state machines, and re-establish the IMA protocol with the far end.

Syntax

restartimagrp *<group>*

Syntax Description

<i>group</i>	Specifies the IMA group number to restart.
Note	Enter the dspimagrps command in the ATM CLI context to display a list of all IMA groups on the current card.

Related Commands

dspimagrp, **dspimalnk**

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user restarts IMA group 1.

```
NodeB.5.MPSM155 [ATM] .a > restartimagrp 1
```

rrtcon

Re-route Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **rrtcon** command to immediately re-route a connection. Perform this operation on the master endpoint only.

Syntax (ATM Service Context)

```
rrtcon <ifNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to reroute.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.

Syntax (Frame Relay Service Context)

```
rrtcon <ifNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to reroute.
Note	Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay connections.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Service Context)

```
rrtcon <ifNum> <dlci>
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Interface number (bundle number) of the bundle to reroute.
Note	Use the dspscons command to display the bundle number and DLCI for all active connections.
<i>dlci</i>	Specifies the data-link connection identifier. Use 1000 for RPM-XF connections.

Related Commands

dspcons, dspcon

Attributes

Log: yes

State: active

Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user re-routes the connection on port 5 that has a VPI of 255 and a VCI of 65535.

```
NodeB.5.MPSM155 [ATM] .a > rrtcon 5 255 65535  
Connection rerouted
```

Example (Frame Relay Service Context)

In the following example, the user re-routes the connection on port 13 that has a DLCI of 130.

```
NM8850_SF.27.MPSM16T1E1 [FR] .a > rrtcon 13 130  
Connection rerouted
```

sesntimeout

Session Timeout

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **sesntimeout** command to extend or reduce the amount of idle time in a user-session from the default of 10 minutes. If you do not specify a timeout period, the system displays the current timeout. At the end of the session, the system logs you out.

To set the timeout function to the maximum seconds allowed (43,200 seconds, or 730 minutes), specify **0** seconds.



Note

The **sesntimeout** command is equivalent to the **timeout** command.

Syntax

sesntimeout [*timeout*]

Syntax Description

<i>timeout</i>	Number of idle time seconds before the session automatically terminates. The maximum timeout is 12 hours(43200 seconds). You can enter 43200 or just 0 to set the timeout session to the maximum timeout.
----------------	---

Related Commands

None.

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user sets the session timeout threshold to 12 minutes (720 seconds).

```
M8830_CH.12.MPSM155[ATM].a > sesntimeout 720
The timeout period for this session is now set to 720 second(s)
```

setctx

Set CLI Context

Service Context—ATM, Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **setctx** command to change the service context for the current CLI session to either ATM or Frame Relay (FR). This new context is valid for the current user session only. Subsequent user sessions will revert to the default CLI context, set with **cnfcli** command.



Note

The MPSM-T3E3-155 and MPSM-16-T1E1 must have a multi-service license in order to support both Frame Relay and ATM services simultaneously. To see the licenses that are installed on the card, enter the **dsplc** command on the PXM.

For detailed information about setting the service context on the MPSM-T3E3-155, see the [“Setting the Service Context on MPSM-T3E3-155 and MPSM-16-T1E1 Cards”](#) section in [Chapter 2, “Preparing MPSM-T3E3-155 and MPSM-16-T1E1 Cards and Lines for Communication.”](#)

Syntax

```
setctx <atm | fr>
```

Syntax Description

atm fr	Sets the service context of the card for this user session to either ATM or Frame Relay. Enter atm to set the session to ATM, or enter FR to set the session to Frame Relay.
Note	The card must have the specified service enabled. For example, if the card has only ATM service enabled, then setting the CLI service context to FR is not allowed.

Related Commands

cnfcli, **dsplc**

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user changes the service context of the card from FR to ATM for this user session. The switch prompt changes from [FR] to [ATM] to reflect the new service context.

```
8850_NY.13.MPSM155 [FR] .a > setctx atm
```

```
M8850_NY.13.MPSM155 [ATM] .a >
```

seteng

Set Engineering

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **seteng** command to enable debugging and engineering commands for the current CLI session. These commands require privilege level CISCO_GP.



Note

The **seteng** command is for use by Cisco developers, TAC personnel, and so on. It is not intended for end-users.

Syntax

seteng <on / off>

Syntax Description

on / off	Enter on to permit access to the engineering related commands. Enter off to disable access to the engineering related commands. Default: off
-----------------	--

Related Commands

dspeng

Attributes

Log: yes State: active, standby, init Privilege: CISCO_GP

Example

In the following example, the user enables access to the engineering related commands.

```
mpsm_node1.1.MPSM16T1E1 [FR] .a > seteng on
```

sfmDBShow

Show Statistics File Manager Database

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **sfmDBShow** command to display the contents of the statistics file manager.

Syntax

sfmDBShow <dbLevel>

Syntax Description

<i>dbLevel</i>	Specifies the extent of statistics information to be displayed. Enter a number to indicate the extent of statistics information you want to display, as follows: <ul style="list-style-type: none"> • 1 = List all statistics files • 2 = List uploaded statistics files • 3 = SFMAPI-SFM-SUM IPC Msg statistics • 4 = List all the above statistics and globals.
----------------	---

Related Commands

None.

Attributes

Log: yes State: active Privilege: GROUP1

Example)

In the following example, the user displays all statistics files (level 1).

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > sfmdbshow 3
```

```
-----
                STAT FILE MGR: Internal Information
-----

SFMAPI -> SFM <-> SUM IPC Statistics:

SFMAPI - SFM:
  api->sfm: creMsgS ok                : 0
  api->sfm: creMsgS fail               : 0
  sfm: creReqMsgR                     : 0
  api->sfm: delMsgS ok                 : 0
  api->sfm: delMsgS fail               : 0
  sfm: delReqMsgR                     : 0
SFM - SUM:
  sfm->sum: listResMsgS_ok             : 1
  sfm->sum: listResMsgS_fail           : 0
  sfm->sum: creMsgS_ok                 : 0
```

```
sfm->sum: creMsgS_fail           : 0
sfm->sum: delMsgS_ok             : 0
sfm->sum: delMsgS_fail           : 0
SUM - SFM:
sfm: delResMsgR                 : 0
sfm: upldReqMsgR                : 0
sfm: unkMsgR                    : 0
sfm: times ep wait loop fail    : 0
```

shellConn

Enter a ShellConn Session

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **shellConn** command to enter the command mode for the shell utility.



Note

The **shellconn** command is for use by Cisco developers, TAC personnel, and so on. It is not intended for end-users.

Syntax

shellConn

Syntax Description

None.

Related Commands

None.

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user enters the shellconn.

```
mpsm_node1.3.MPSM155 [FR] .a > shellConn
mpsm>
```

smclrscrn

Service Module Clear Screen

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **smclrscrn** command to enable or disable certain clear-screen commands at the node level.

To see the current enable state, enter **smclrscrn** without any parameters.

Syntax

smclrscrn [**enable** / **disable**]

Syntax Description

enable / disable	Type enable to enable the clear screen commands, or type or disable to disable the clear screen commands. Default: disabled
-------------------------	--

Related Commands

clrscrn

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user shows whether clear-screen commands are enabled or disabled.

```
mpsm_node1.1.MPSM16T1E1[FR].a > smclrscrn
Value of smClrscrn is currently enabled
```

In the following example, the user enables clear screen commands.

```
mpsm_node1.1.MPSM16T1E1[FR].a > smclrscrn enable
Value of smClrscrn is now enabled
```


startbert

Start Bit Error Rate Test

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **startbert** command to start running a bit error rate test (BERT) on a line, path or port. Before you can start a BERT, you must first add a BERT session on the line or port using the **addbert** command.

Syntax

```
startbert <bertIfNum>
```

Syntax Description

bertIfNum Specifies the interface number (line, path, or port number) on which to start a BERT test.

Note Enter the **dspberts** command to display the lines, paths, or ports that are ready to test.

Related Commands

addbert, cnfbert, stopbert

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **startbert** command to start the configured BERT on the path number 1.1.1:5.2.

```
NodeB.5.MPSM155 [FR] .a > startbert 1.1.1:5.2
```

startimalnktst

Start IMA Link Test

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **startimalnktst** command to start an IMA link connectivity test on a specified *link* in a specified IMA *group*. You check that an IMA link connection is valid by sending a *test pattern* to the *link*. The test pattern is a number in the range of 0–254. If the test pattern number is the same when it arrives at the receive endpoint of the link, then the link is valid. If the test pattern number is different or does not arrive at all, then the link is invalid. You can run only one test at a time.

Syntax

```
startimalnktst <group> <link> -pat <test Pattern>
```

Syntax Description

<i>group</i>	Specifies the IMA group that contains the link you want to test. Note Enter the dspimalnks command in the ATM CLI context to display the all active IMA links and the groups to which they belong.
<i>link</i>	Identifies the line or path in the IMA group to test.
-pat	The test pattern number, in the range from -1 through 254. Default: -1, the program selects a pattern

Related Commands

stopimalnktst, cnfimalnktst

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user starts an IMA link test on IMA group 1, link 1.1.1:1.1, using test pattern 1:

```
M8830_CH.4.MPSM155 [ATM] .a > startimalnktst 1 1.1.1:1.1 -pat 1
```

stopbert

Stop Bit Error Rate Test

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **stopbert** command to stop running the bit error rate test (BERT) on a line, port or path.

Syntax

```
stopbert <bertIfNum>
```

Syntax Description

bertIfNum Specifies the interface BERT interface number (line, path, or port number) on which to stop a BERT test.

Note Enter the **dspberts** command to display all lines, paths, or ports with BERT tests running.

Related Commands

addbert, cnfbert, startbert

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **stopbert** command to stop the configured BERT on the path number 1.1.1:5.3.

```
NodeB.5.MPSM155 [FR] .a > stopbert 1.1.1:5.3
```

stopimalnktst

Stop IMA Link Test

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **stopimalnktst** command to stop the IMA link test that was started using the **startimalnktst** command.

Syntax

stopimalnktst <*group*>

Syntax Description

<i>group</i>	Specifies the IMA group that contains the link you want to stop testing.
Note	Enter the dspimagrps command in the ATM CLI context to display the all IMA groups on the card.

Related Commands

startimalnktst, **cnfimalnktst**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user enters the **stopimalnktst** to stop the IMA link test on IMA group 1.

```
NodeB.5.MPSM155 [ATM] .a > stopimalnktst 1
```

switchapsln

Switch APS Line

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **switchapsln** command to switch the specified working APS line (*bay*, *line*) to its protection line.

See the description for the **addapsln** command for a detailed explanation of Automatic Protection Switching (APS).

Syntax

```
switchapsln <bay> <line> <switchOption> [<serviceSwitch>]
```

Syntax Description

<i>bay</i>	The working bay number to switch. On the MPSM-T3E3-155 card, the bay number is always 1.
<i>line</i>	The working line number to switch. On the MPSM-T3E3-155 card, the line number is always 1.
<i>switchOption</i>	The method of performing the switch. <ul style="list-style-type: none"> • 1 = clear (returns to working line) • 2 = lockout of protection (locks out the specified APS pair from being switched to protection line) • 3 = forced working->protection (forces a working line to protection line switch unless the protection line is locked out) • 4 = forced protection->working (forces a protection line to working line switch; 1+1 architecture mode only) • 5 = manual working->protection (manual switch) • 6 = manual protection->working (manual switch; 1+1 architecture mode only)
<i>service switch</i>	When set to 1, this field causes all APS lines to switch to their protected lines. When set to 0 (the default), this field does NOT cause all APS lines to switch.

Related Commands

addapsln, **cnfapsln**, **delapsln**, **dspapsln**, **dspapslns**, **dspapsbkplane**, **clrbecnt**, **dspbecnt**

Attributes

Log: no	State: active	Privilege: GROUP1
---------	---------------	-------------------

Example

In the following example, the user switches the working APS line 1.1 to its protection line. In this example, the user includes the option that forces a working line to switch to a protection line unless the protection line is locked out.

```
NodeB.5.MPSM155 [ATM] .a > switchapsln 1 1 3 1  
Forced line switch from working to protection succeeded on line 1.1
```

timeout

Timeout

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **timeout** command to extend or reduce the amount of idle time in a user-session from the default of 10 minutes. If you do not specify a timeout period, the system displays the current timeout. At the end of the session, the system logs you out.

To set the timeout function to the maximum seconds allowed (43,200 seconds, or 730 minutes), specify **0** seconds.



Note

The **sesntimeout** command is equivalent to the **timeout** command.

Syntax

```
timeout [time_out]
```

Syntax Description

<i>time_out</i>	Number of idle seconds before the session automatically terminates.
-----------------	---

Related Commands

sesntimeout

Attributes

Log: no State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user displays the current timeout.

```
NodeB.14.MPSM155[ATM].a > timeout
The timeout period for this session is currently 43200 second(s)
```

In the following example, the user sets the session timeout threshold to 100 minutes (6000 seconds).

```
NodeB.14.MPSM155[ATM].a > timeout 6000
The timeout period for this session is now set to 6000 second(s)
```

trace

Trace

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **trace** command to display the current status of the trace feature.

Syntax

trace

Related Commands

dumptrace

Attributes

Log: no State: active, standby Privilege: GROUP1

Example

In the following example, the user shows the current status of the trace feature.

```
M8830_CH.4.MPSM155 [FR] .a > trace
Usage1 : Trace off
Usage2 : Trace normal
Usage3 : Trace mod <Mod Obj> <Level> <Flags>
Usage4 : Trace task <TaskName> <On/Off/Print>
Usage5 : Trace start
Usage6 : Trace status
Usage7 : Trace dump
Usage8 : Trace header <On>/<Off>
```


tstcon

Test Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **tstcon** command to check to see if the switch can communicate with both ends of the connection in the egress direction.

Syntax (ATM Service Context)

```
tstcon <ifNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to test.
Note	Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.

Syntax (Frame Relay Service Context)

```
tstcon <ifNum> <dldci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to test.
Note	Use the dspscons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay connections.
<i>dldci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Service Context)

```
tstcon <ifNum> <dldci>
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Interface number (bundle number) of the bundle to disconnect.
Note	Enter the dspscons command to display the bundle number and DLCI for all active connections.
<i>dldci</i>	Specifies the data-link connection identifier. Use 1000 for RPM-XF connections.

Related Commands

dspcon, tstdelay, testconseg

Attributes

Log: yes State: active Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user tests the connection on port 12, VPI 35, VCI 120.

```

M8850_SF.27.MPSM16T1E1[ATM].a > tstcon 12 35 120
tstconseg is in progress ..
Connection Id      Test Type      Direction      Result      Round Trip Delay
=====          =====          =====          =====          =====
12.0035.00120:    OAM Lpbk      egress         Success      1468 microsec

```

Example (Frame Relay Service Context)

In the following example, the user tests the connection on port 13, DLCI 130.

```

M8850_SF.27.MPSM16T1E1[FR].a > tstcon 13 130
tstcon is in progress ..
Connection Id      Test Type      Result      Round Trip Delay
=====          =====          =====          =====
13.0000130        Test Con      Passed

```

Example (PPP Service Context)

In the following example, the user tests the connection on port 5, DLCI 100.

```

M8850_SF.25.MPSM16T1E1PPP[FR].a > tstcon 5 1000
tstcon is in progress ..
Connection Id      Test Type      Result      Round Trip Delay
=====          =====          =====          =====
05.0001000        Test Con      Passed

```

tstconseg

Test Connection Segment

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **tstconseg** command to test the integrity of an SVC or SPVC. With **tstconseg**, a single collection of supervisory cells is sent in the *egress* direction between the card and service equipment (CPE). (See **tstdelay** for *ingress* direction.) The test displays results at completion. You can also display test results using the **dspcon** command.



Note

The **dspcon** fields on the MPSM-T3E3-155 for round trip delay (RTD)—including the status of OAM loopback—always show the results of the latest test and are not changed until a new execution of **tstconseg** or **tstdelay**. Therefore, re-executing **dspcon** does not clear the value for RTD or the indication that an OAM loopback is present. The only way to reset these fields to null is to down the port (using **dnport**).

Syntax

```
tstconseg <ifNum> <vpi> <vci> [-num <iterations>]
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) of the connection to test.
Note	Use the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.
-num	Specifies the number of times to repeat the test, in the range 1-10.

Related Commands

dspcon, **tstdelay**, **dspchantests**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user tests the integrity of the connection on port 12, VPI 35, VCI 12 in the egress directions, two times.

```
NM8850_SF.27.MPSM16T1E1[ATM] .a > tstcon 12 35 120 -num 2
tstconseg is in progress ..
Connection Id    Test Type    Direction    Result    Round Trip Delay
=====    =====    =====    =====    =====
12.0035.00120:    OAM Lpbk    egress    Success    1468 microsec
tstconseg is in progress ..
```

Connection Id	Test Type	Direction	Result	Round Trip Delay
=====	=====	=====	=====	=====
12.0035.00120:	OAM Lpbk	egress	Success	1468 microsec

tstdelay

Test Delay

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **tstdelay** command to test the integrity of the connection in the ingress direction by sending a collection of supervisory cells to the remote end of the network and back. (See **tstconseg** for the egress direction.)



Note

The **dspcon** fields on the MSPM-155 for round trip delay—including the status of OAM loopback—always show the results of the latest test and are not changed until a new execution of **tstconseg** or **tstdelay**. Therefore, re-executing **dspcon** does not clear the value for RTD or the indication that an OAM loopback is present. The only way to reset these fields to null is to down the port (through **dnport**).



Note

The primary purpose of **tstdelay** is to test the integrity of the connection. The round trip time is not accurate enough for any use that requires an accurate measurement of delay.

Syntax (ATM Service Context)

```
tstdelay <ifNum> <vpi> <vci> [-num <iterations>]
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to test.
Note	Use the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.
-num	Specifies the number of times to repeat the test, in the range 1-10.

Syntax (Frame Relay Service Context)

```
tstdelay <ifNum> <dldci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to test.
Note	Use the dspcons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay connections.
<i>dldci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Service Context)

tstdelay <ifNum> <dLci>

Syntax Description (PPP Service Context)

<i>ifNum</i>	Interface number (bundle number) of the bundle to disconnect.
Note	Enter the dspcons command to display the bundle number and DLCI for all active connections.
<i>dLci</i>	Specifies the data-link connection identifier (DLCI). Use 1000 for RPM-XF connections.

Related Commands

dspcons, tstconseq, dspcon

Attributes

Log: yes State: active Privilege: GROUP1

Example (ATM Service Context)

In the following example, the user tests the integrity of the connection on port 18, VP 45, VCI 56, in the ingress direction.

```
M8850_SF.10.MPSM155[ATM].a > tstdelay 18 45 56
```

```
tstdelay is in progress ..
```

Connection Id	Test Type	Direction	Result	Round Trip Delay
18.0045.00056:	OAM Lpbk	ingress	Success	176 microsec

```
=====
```

```
18.0045.00056: OAM Lpbk ingress Success 176 microsec
```

Example (Frame Relay Service Context)

In the following example, the user tests the integrity of the connection on port 11, DLCI 150 , in the ingress direction.

```
M8850_SF.27.MPSM16T1E1[FR].a > tstdelay 11 150
```

```
tstdelay is in progress ..
```

Connection Id	Test Type	Result	Round Trip Delay
11.0000150	Test Delay	Passed	483 microsec

```
=====
```

```
11.0000150 Test Delay Passed 483 microsec
```

Example (PPP Service Context)

In the following example, the user tests the integrity of the connection on port 5, DLCI 1000 , in the ingress direction.

```
M8850_SF.25.MPSM16T1E1PPP[FR].a > tstdelay 5 1000
```

```
tstdelay is in progress ..
```

```
Connection Id  Test Type      Result    Round Trip Delay
```

```
=====
```

```
05.0001000    Test Delay      Passed    282 microsec
```

upallports

Up All Ports

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upallports** command to activate all ports. The **upallports** command is useful when restoring all ports that were deactivated by the **dnallports** command.

Syntax

upallports

Syntax Description

No parameters

Related Commands

dnallports

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **upallports** command to activate all ports.

```
NodeB.6.MPSM155 [ATM] .a > upallports
```


upcon

Up Connection

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upcon** command to activate a connection that was previously brought down by the **dncon** command. The typical purpose of **dncon** is some form of operational modification or troubleshooting.

Syntax (ATM Service Context)

```
upcon <ifNum> <vpi> <vci>
```

Syntax Description (ATM Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to activate.
Note	Use the dspcons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the connection.

Syntax (Frame Relay Service Context)

```
upcon <ifNum> <dlci>
```

Syntax Description (Frame Relay Service Context)

<i>ifNum</i>	Specifies the interface number (port number) of the connection to activate.
Note	Use the dspcons command in the Frame Relay CLI context to display the port number and DLCI for all active Frame Relay connections.
<i>dlci</i>	Specifies the Data-Link Connection Identifier.

Syntax (PPP Service Context)

```
upcon <ifNum> <dlci>
```

Syntax Description (PPP Service Context)

<i>ifNum</i>	Specifies the interface number (bundle number) of the connection to activate.
Note	Enter the dspcons command to display the bundle number and DLCI for all active connections.
<i>dlci</i>	Specifies the data-link connection identifier (DLCI). Use 1000 for RPM-XF connections.

Related Commands

dncon

Attributes

Log: yes

State: active

Privilege: any

Example (ATM Service Context)

In the following example, the user enters the **upcon** command to activate connection 5, VPI 100, VCI 100.

```
M8830_CH.12.MPSM155[ATM].a > upcon 5 100 100
```

Example (Frame Relay Service Context)

In the following example, the user enters the **upcon** command to activate connection 5, DLCI 3.

```
mpsm_node.9.MPSM155[FR].a > upcon 5 3
```

Example (PPP)

In the following example, the user enters the **upcon** command to activate the connection to MLPPP bundle 5.

```
mpsm_node.9.MPSM155[FR].a > upcon 5 1000
```

upcons

Up Connections

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upcons** command to bring up a set of consecutive connections, starting with the specified interface (port), VPI, and VCI.

Syntax

```
upcons <ifNum> <vpi> <vci> [-num <num. of conns to up>] [-verbose <1 | 0>]
```

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) of the connection to activate. Note Use the dspscons command in the ATM CLI context to display the port number, VPI, and VCI for all active ATM connections.
<i>vpi</i>	Specifies the Virtual Path Identifier (VPI) of the first connection.
<i>vci</i>	Specifies the Virtual Connection Identifier (VCI) of the first connection.
-num	Specifies the number of consecutive connections to bring up.
-verbose <1 0>	Enable or disable verbose mode. In verbose mode, the system immediately displays the connection identifier of each connection after the connection is deleted. <ul style="list-style-type: none"> • 1 = Enable verbose mode • 0 = Disable verbose mode. <p>In verbose mode, the system immediately displays the connection identifier of each connection after the connection is deleted.</p> <p>Default: 0</p>

Related Commands

dncon, dncons, dspcon, dspscons, upcon

Attributes

Log: yes State: active, standby, init Privilege: ANYUSER

Example

In the following example, the user activates two connections associated with port 8, VPI 100, VCI 100. In this example, the user activates verbose mode so that the connection identifier of each connection is displayed after the connection is deleted.

```
M8830_CH.4.MPSM155[ATM].a > upcons 8 100 100 -num 2 -verbose 1
Warning : upcons command is not recommended to be used on a production node...
Do you want to proceed (Yes/No)? y
Conn. 8.100.100 is admin up
```

upilmi

Up ILMI

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upilmi** command to activate interim local management interface (ILMI) for a specific logical port. Before activating ILMI, you must:

1. Activate a line through the **upln** command and configure the line through **cnfln**
2. Create a logical port through the **addport** command

After activating ILMI, you can configure ILMI through the **cnfilmi** command.

Syntax

upilmi <ifNum> <partId>

Syntax Description

<i>ifNum</i>	Specifies the interface number (port number) on which you want to enable ILMI.
Note	Use the dspports command in the ATM CLI context to display the interface number and partition id for all active ATM ports.
<i>partId</i>	Specifies the partition ID, in the range 1–20.

Related Commands

cnfilmi, **dnilmi**, **dspilmi**

Attributes

Log: yes State: active, standby Privilege: GROUP1

Example

In the following example, the user activates ILMI for port 5 on partition 1.

```
mpsm_node.5.MPSM155[ATM].a > upilmi 5 1
Warning: connections (if any) on port could get rerouted.
Do you want to proceed (Yes/No) ? y
```

upimagrp

Up IMA Group

Service Context—ATM

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upimagrp** command to activate an IMA *group* that has been de-activated with the **dnimagrp** command.

Syntax

upimagrp <*group*>

Syntax Description

<i>group</i>	Specifies the IMA group to activate.
Note	Enter the dspimagrps command to see a list of all IMA groups on the current card.

Related Commands

addimagrp, **delimagrp**, **dnimagrp**, **dspimagrp**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user enables the IMA group 11, and then enters the **dspimagrps** command to verify that the appropriate IMA group has been brought back into service.

```
mpsm_node.5.MPSM155 [ATM] .a > upimagrp 11
```

upln

Up Line

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upln** command to activate a line. After you have activated the line, use **cnfln** to configure the line characteristics.

Syntax

upln <*bay.line*>

Syntax Description

bay.line Identifies the line you want to bring down, in the format *bay.line*.

Note Use the **dsplns** command to display the line numbers and activation status for all lines on the current card.

Related Commands

dspln, dsplns, cnfln, dnln

Attributes

Log: yes

State: active

Privilege: GROUP1

Example

In the following example, the user enters the **upln** command to activate line 1 in bay 1.

```
M8850_NY.13.MPSM155 [ATM] .a > upln 1.1
```

upmfrbundle

Up a Multi-link Frame Relay Bundle

Service Context—Frame Relay

Modules—MPSM-T3E3-155

Enter the **upmfrbundle** command to change the administrative state of an MFR bundle to *up*.

Syntax

upmfrbundle *<bundleNumber>*

Syntax Description

bundleNumber Specifies the MFR bundle number to activate.

Note Enter the **dspmfrbundles** command to display all MFR bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

addmfrbundle, **delmfrbundle**

Example

In the following example, the user brings up bundle 1.

```
M8850_SF.10.MPSM155 [FR] .a > upmfrbundle 1
```

upmpbundle

Activate an MLPPP Bundle

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **upmpbundle** command to change the administrative status of an MLPPP bundle to *up*.

Syntax

upmpbundle <*bundleNumber*>

Syntax Description

bundleNumber Identifies the MLPPP bundle number to activate.

Note Enter the **dspmbundles** command to display all MLPPP bundles on the card.

Attributes

Log: yes

State: active

Privilege: GROUP1

Related Commands

dnmpbundle

Example

In the following example, the user brings up MLPPP bundle 5.

```
M8850_SF.27.MPSM16T1E1PPP[FR].a > upmpbundle 5
```


uppath

Up Path

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155

Enter the **uppath** command to activate the specified path.

Syntax

uppath [*-path_filter*] <path_num>

Syntax Description

<i>-path_filter</i>	<p>Specifies the type of path path you want to activate.</p> <p>Possible <i>path_filter</i> keywords are:</p> <ul style="list-style-type: none"> • -sts—Select STS paths in SONET networks, or AU paths in SDH networks. • -vt—Select VT paths in SONET networks, or TU3 paths in SDH networks. • -ds3—Select DS3 paths in SONET and SDH networks. • -e3—Select E3 paths in SONET and SDH networks. • -ds1—Select DS1 paths in SONET and SDH networks. • -e1—Select E1 paths in SONET and SDH networks. <p>Note STS/STM paths and DS3 paths can have the same path number. If you enter the dnpath command without the <i>-path_filter</i> option, and only STS/STM paths are configured on the card, the STS/STM path with the specified path number is de-activated. If there are DS3 paths configured on the card as well as STS/STM paths, and you do not include the <i>-path_filter</i> option with the dnpath command, the lowest-level path (the DS3 path) is de-activated. To avoid confusion, Cisco recommends that you specify a <i>-path_filter</i> when you display a path.</p>
<i>path_num</i>	<p>Specifies the number of the path to activate.</p> <p>Note Enter the dsppaths <<i>path_filter</i>> command to display the path numbers for available paths.</p>

Related Commands

dnpath

Attributes

Log: yes

State: active

Privilege: GROUP1

Examples

In the following example, the user enters the **uppath** command to activate the STS path 1.1.0.

```
mpsm_node.11.MPSM155 [ATM] .a > uppath -sts 1.1.0
```

In the following example, the user enters the **uppath** command to activate the T3 path 1.1.1.

```
mpsm_node.11.MPSM155 [FR] .a > uppath -ds3 1.1.1
```

upport

Up Port

Service Context—ATM and Frame Relay

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **upport** command to activate a logical port so it can carry traffic. The **upport** command typically follows re-configuration (such as changing an SCT) or troubleshooting steps. To bring down an ATM port, the card must be in the ATM CLI context. To bring down a Frame Relay port, the card must be in the Frame Relay CLI context.

The behavior of connections that previously used the port vary by interface type:

- After you re-enable an NNI port through **upport**, you cannot return previously re-routed connections to the port. The PXM chooses the best route.
- After you re-enable a UNI port, the connections continue is restored as long as the remote port is active.

Syntax

upport <*ifNum*>

Syntax Description

<i>ifNum</i>	Identifies the logical interface (port) you want to bring up.
Note	Use the dsports command in the to display the port numbers for all active ports in the current CLI context.

Related Commands

dspport, **dsports**, **dnport**

Attributes

Log: yes State: active Privilege: GROUP1

Example

In the following example, the user activates ATM port 11 on the current card.

```
NodeB.6.MPSM155 [ATM].a > upport 11
Traffic loss will result on all connections on this port.
Do you want to proceed (Yes/No) ? y
```

upppplink

Activate a PPP Link

Service Context—PPP

Modules—MPSM-16-T1E1, MPSM-T3E3-155

Enter the **upppplink** command to change the administrative status of a PPP link to *up*.

Syntax

upppplink *<link>*

Syntax Description

<i>link</i>	Identifies the PPP link number to activate.
Note	Enter the dsppplinks command to display all MLPPP links on the card.

Attributes

Log: yes State: active Privilege: GROUP1

Related Commands

dnppplink

Example

In the following example, the user brings up PPP link 5.

```
M8850_SF.27.MPSM16T1E1PPP [FR] .a > upppplink 5
```

users

Users

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **users** command to display the following information about user sessions that are currently running:

- Access method and port (telnet session to the MPSM-T3E3-155, for example)
- Current card slot the session is using
- Idle time for the user session (can depend on the **sesntimeout** command)
- User-name (the login name)
- Access level of each user per session.
- IP address or slot of the device that accessed the card (not the IP address of the card or node)
- Session start date and time.

Syntax

users

Syntax Description

No Parameters

Related Commands

dspusers, **adduser**, **cnfuser**, **timeout**

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays the current users on the MPSM-T3E3-155 card.

```
M8850_SF.27.MPSM16T1E1[FR].a > users
```

Port	Slot	Idle	UserId	Access	From	Started At
telnet.01	27	0:00:00	cisco	CISCO_GP	0.0.0.0	00:00:00 JAN01
smterm.02 *	27	0:00:00	cisco	CISCO_GP	slot 8	06:28:50 FEB10

who

Who

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **who** command to see details about the user currently logged into a card. The following information is displayed:

- Type of port where you logged into the card
- Slot number of the current card
- Idle time in hours, minutes, and seconds
- Current username
- IP address or slot of the device that accessed the card (not the IP address of the card or node)
- Session start date and time.

Syntax

who

Syntax Description

No parameters

Related Commands

adduser, deluser, whoami, users

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays information about the user currently logged into the card.

```
M8850_SF.27.MPSM16T1E1[FR] .a > who
```

Port	Slot	Idle	UserId	Access	From	Started At
telnet.01	27	0:00:00	cisco	CISCO_GP	0.0.0.0	00:00:00 JAN01
smterm.02 *	27	0:00:00	cisco	CISCO_GP	slot 8	06:28:50 FEB10

whoami

Who Am I

Service Context—ATM, Frame Relay, PPP

Modules—MPSM-T3E3-155, MPSM-16-T1E1

Enter the **whoami** command to display the current logged in user ID, access level, and port.

Syntax

whoami

Syntax Description

No parameters

Related Commands

adduser, deluser, who

Attributes

Log: no State: active, standby Privilege: ANYUSER

Example

In the following example, the user displays information about the user of the current terminal session.

```
NodeB.5.MPSM155 [ATM] .a > whoami
```

```
User ID:          cisco  
Access Level:    CISCO_GP  
Terminal Port:   smterm.02
```




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